

MIZORAM PUBLIC SERVICE COMMISSION
COMPETITIVE EXAMINATIONS FOR RECRUITMENT TO THE POSTS OF
FISHERY EXTENSION OFFICER
UNDER FISHERIES DEPARTMENT, DECEMBER, 2017

TECHNICAL PAPER – III

Time Allowed : 2 hours

Full Marks : 200

All questions carry equal marks of 2 each.

Attempt all questions.

1. Which of the following is a crustacean parasite infesting fish is?
(a) Gyroductylus (b) Argulus
(c) Dactyrogryrus (d) Hexamita
2. The most important biochemical changes associated with freezing of fish is:
(a) Protein denaturation (b) Freezer burn
(c) Gapping of fillet (d) Crystallization
3. Which one is 22nd Amino Acid?
(a) Pyroflavine (b) Skatole
(c) Gamactene (d) Pyrrolysine
4. Which of the following is Portugese-man- of-war?
(a) Physalia (b) Euphasids
(c) Sagittal (d) None of these
5. For gill net.....type of twist are used:
(a) Soft twist (b) Extra hard twist
(c) Hard twist (d) All of these
6. Koi Carp Herpes virus is:
(a) DNA virus (b) IPNV virus
(c) RNA virus (d) SVC virus
7. Which of the following is not an ectoparasite?
(a) Argulus (b) Trichodina
(c) Hexamita (d) Dactyrogryrus
8. Fish muscle protein denaturation is due to changes in:
(a) Sarcoplasmic protein (b) Stroma protein
(c) Myofibrillar protein (d) Myogen
9. White Tail Disease (WTD) is caused by :
(a) Bacteria (b) Fungus
(c) Virus (d) Parasite

10. Body's energy crisis favour :
- (a) Gluconeogenesis (b) Glycolysis
(c) Glycogenesis (d) None of these
11. Prostaglandins are
- (a) Hormones (b) Eicosanoids
(c) Enzymes (d) None of these
12. The causative agent of disease that can be transmitted from brood stock:
- (a) IPV (b) Both (a) & (c)
(c) WSSV (d) None of these
13. Antibodies are produced by :
- (a) Lymphocytes (b) Thrombocytes
(c) Leucocytes (d) All of these
14. *Aeromonas salmonicida* causes :
- (a) Enteric red mouth disease (b) Red pest
(c) Saddleback disease (d) Furunculosis
15. An antioxidant occur naturally in fish :
- (a) Creatin (b) BHA
(c) Anserine (d) Carnosine
16. CIFAX is mainly used for the treatment of :
- (a) EUS (b) Vibriosis
(c) Argulus (d) Gill fluke
17. The spoilage rate get double for every.....increase in temperature
- (a) 4.5°C (b) 5.5°C
(c) 5°C (d) 10°C
18. The most important bacteria which produce histamine from histidine
- (a) *Hafnia sp* (b) *Pseudomonas sp*
(c) *Klebsiella sp* (d) *Morganella sp*
19. The length at which 50% of the fish are caught is known as:
- (a) Length at first maturity (b) Length at first capture
(c) Age at first maturity (d) None of these
20. The lower limit of growth for bacteria, yeast or mould is considered as :
- (a) -15°C (b) -7°C
(c) -20°C (d) -5°C
21. The disease 'Saprolegniasis' is caused in fish due to:
- (a) Bacterial infection (b) Nutritional disease
(c) Fungal infection (d) Parasitic infection
22. Without which of the following staining agent Gram staining can also be performed?
- (a) Crystal violet (b) 95% alcohol
(c) Gram's Iodine (d) Safranin

23. In tropical fishes, age could be calculated from:
- (a) Vertebra
 - (b) Length frequency analysis
 - (c) Otolith
 - (d) All of these
24. The parasitic life cycle of Diplostomum is completed in :
- (a) Fish
 - (b) Mollusc
 - (c) Crab
 - (d) Bird
25. Intracellular viral replication is inhibited by :
- (a) Interferon
 - (b) Cytokines
 - (c) Sideropore
 - (d) Transferrin
26. Haematocrit is the ratio ofto the total blood volume
- (a) Haemoglobin
 - (b) WBCs
 - (c) Platelets
 - (d) Cellular fraction
27. A major phospholipids present in muscle of marine fish and shrimp is :
- (a) Squalene
 - (b) Astacene
 - (c) Pristine
 - (d) Lecithin
28. The process of conversion of glycogen into glucose is called :
- (a) Glycogenolysis
 - (b) Glycogenesis
 - (c) Glycolysis
 - (d) Gluconeogenesis
29. IMViC test is a confirmatory test for :
- (a) Salmonella
 - (b) E.coli
 - (c) Streptococcus
 - (d) Vibrio
30. Which type of mechanical dryer is most commonly used for dry fishes?
- (a) Cabinet dryer
 - (b) Tunnel dryer
 - (c) Spray dryer
 - (d) Kiln dryer
31. Secondary oxidative rancidity product is :
- (a) Measurement of peroxide
 - (b) Measurement of malonaldehyde
 - (c) Measurement of free fatty acid
 - (d) Measurement of glycerol
32. Vitamin pyridoxine is also known as :
- (a) Vitamin D
 - (b) Vitamin E
 - (c) Vitamin B6
 - (d) Vitamin B7
33. The action of most of the spoilage bacteria is preventing at.....salt concentration level
- (a) 3 %
 - (b) 15 %
 - (c) 10 %
 - (d) 20 %
34. White spot formation in salt cured fish is due to formation of:
- (a) Disodium hydrogen phosphate
 - (b) Dimagnesium hydrogen phosphate
 - (c) Dipotassium hydrogen phosphate
 - (d) Dicalcium hydrogen phosphate
35. The carcinogenic compound present in wood is :
- (a) Guaiacol
 - (b) Benzopyrene
 - (c) Phenol
 - (d) Formaldehyde

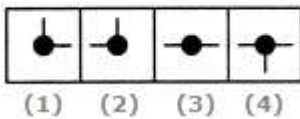
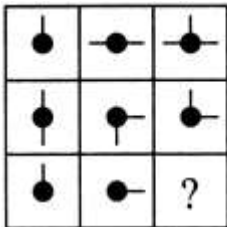
36. The basic sampling unit for fish population dynamics is:
- (a) Species (b) Stock
(c) Population dynamic (d) Cohort
37. Find out the aromatic amino acid :
- (a) Alanine (b) Methionine
(c) Histidine (d) Phenylalanine
38. When the area of haemorrhage is less than 1-2 mm, then it is called:
- (a) Ecchymotic (b) Hematoma
(c) Petechiae (d) Painbrush
39. The salt curing method where gills and guts are pulled out through the mouth cavity is called :
- (a) Kench curing (b) Wet curing
(c) Pickling (d) Mona curing
40. White spot disease is caused by :
- (a) Ichthyophthirius sp (b) MrNV virus
(c) Ichthyobodo sp (d) IPNV virus
41. The headquarter for fish and fish products under Codex commission is located in :
- (a) U.K (b) HUNGARY
(c) NORWAY (d) U.S.A
42. The test which is used to quantify and detect very small amount of Amino Acid is :
- (a) Ninhydrin reaction (b) Xanthoproteic reaction
(c) Maillard reaction (d) Biuret reaction
43. The time required to kill a particular bacteria at a particular temperature is called :
- (a) Z-value (b) F-value
(c) D-value (d) None of these
44. Metallothionin is a protein which is rich in :
- (a) Methionine (b) Cysteine
(c) Histidine (d) None of these
45. 'Case hardening' is a phenomenon occurs incondition.
- (a) High temp & high RH (b) Low temp & low RH
(c) High temp & low RH (d) Low temp & high RH
46. Coagulase test is a confirmatory test for :
- (a) Streptococcus sp (b) Shigella sp
(c) Staphylococcus sp (d) E.coli
47. The most widely used freezer for freezing seafood in Indian and abroad is :
- (a) Air blast freezer (b) Fluidized bed freezer
(c) Immersion freezer (d) Contact plate freezer
48. COBB's value is used to indicate :
- (a) Light penetration (b) Water proofness
(c) Temperature insulation (d) Anaerobic condition

49. The most effective preservative for canned foods is :
- (a) MSG (b) Glucose
(c) Sucrose (d) Nisin
50. The term 'Bio-chemistry' is coined by :
- (a) Wilhem Kuhne (b) Carl Neuberg
(c) B. Franklin (d) Neelson
51. The mesophilic bacteria responsible for 'sulphur stinker' spoilage is :
- (a) C. botulinum (b) B. thermophilus
(c) C. nigrificans (d) B. subtilis
52. Disinfectants can easily kill mainly:
- (a) Gram +ve bacteria (b) Both (a) & (c)
(c) Gram -ve bacteria (d) None of these
53. Iodine test is used for :
- (a) Starch and glycogen (b) Reduced sugar
(c) General carbohydrate (d) All of these
54. The first commercial production of fish silage was started in :
- (a) Sweden (b) Mexico
(c) Norway (d) Denmark
55. Tyndalization is a sterilization technique which is carried out at temp.... °C at 45 minutes
- (a) 80 (b) 100
(c) 60 (d) 110
56. When relative size of fish caught is high and fishing mortality is high, the condition is:
- (a) Under fishing (b) Eumetric fishing
(c) Overfishing (d) None of these
57. Brevetoxin is related to :
- (a) DSP (b) NSP
(c) ASP (d) PSP
58. The enzyme without its non-protein component is called :
- (a) Holo-enzyme (b) Co-enzyme
(c) Zymogen (d) Apo-enzyme
59. Which of the following compound is used to detect textural degradation in fish and also used to measure the quality of frozen fish?
- (a) TMA (b) Both TMA and DMA
(c) DMA (d) K-value
60. The important guanidine compound present in fish :
- (a) Creatine (b) Proline
(c) Balaine (d) Arginine

61. Crustaceans are more susceptible to bacterial spoilage due to present of :
- (a) Higher amount of calcium (b) Higher amount of fatty acid
(c) Higher amount of free amino acid (d) Lower amount of fat
62. At pH above isoelectric point, the protein becomes :
- (a) Negatively charged (b) Positively charged
(c) Neutral (d) None of these
63. Brown reaction sugar- amines are formed in the :
- (a) Caramalization (b) Xanthoproteic reaction
(c) Maillard reaction (d) None of these
64. Most commonly used to enhance the shelf life of iced fish is :
- (a) Potassium chromate (b) Sodium sorbate
(c) Sodium chloride (d) Potassium sorbate
65. Process of hydrogenation to convert :
- (a) Saturated fatty acid to unsaturated fatty acid
(b) Unsaturated fatty acid to saturated fatty acid
(c) Saturated amino acid to unsaturated amino acid
(d) Unsaturated amino acid to saturated amino acid
66. Lordosis and scoliosis is due to deficiency of :
- (a) Vitamin B7 (b) Vitamin D
(c) Vitamin C (d) Vitamin B1
67. A live microbial feed supplement which beneficially affects the host animal by improving its intestinal balance is termed as :
- (a) Probiotic (b) Antibiotic
(c) Prebiotic (d) None of these
68. Drag net is an example of:
- (a) Selective gear (b) Passive gear
(c) Non-selective gear (d) None of these
69. Storage of solar energy :
- (a) Glycogen (b) Starch
(c) Cellulose (d) None of these
70. Gyrodactylus (skin fluke) is:
- (a) MonogeneanTrematode (b) Cestode
(c) DigeneanTrematode (d) Nematode
71. The term ‘ induced fit model’ is related to :
- (a) Hormone activity (b) Enzyme- substrate interaction
(c) Oxidative phosphorylation (d) None of these
72. A cohort consists of:
- (a) Individuals of same age (b) Same breeding habit
(c) Individuals of same feeding habits (d) All of these

73. The meaty flavor in fish/ seafood is due to :
- (a) Fatty acid (b) Glutamic acid
(c) IMP (d) Propionic acid
74. Compound responsible for typical odour in cold store frozen fishery products :
- (a) Hydrogen sulphide (b) Maillard reaction
(c) Heptanal (d) Mercaptans
75. Recruitment overfishing occurs when:
- (a) Larger fishes constitutes main catch (b) Matured fishes constitutes main catch
(c) Smaller fishes constitutes main catch (d) All of these
76. If 40% of a number is equal to three-seventh of another number, and sum of these two numbers is 145, then which of them is the larger number?
- (a) 85 (b) 70
(c) 75 (d) 65
77. What will come in place of the question mark (?) in the following equation?
 $39.8\% \text{ of } 400 + ?\% \text{ of } 350 = 230$
- (a) 15 (b) 20
(c) 24 (d) 25
78. The area of a circular field is the same as the area of a rectangular field. The length and breadth of the rectangular field are in the ratio 14:11 and its perimeter is 100 meters. What is the diameter of the circular field?
- (a) 14 meters (b) 22 meters
(c) 24 meters (d) 28 meters
79. The ratio of the present ages of Siami and her son respectively is 5:2. After seven years, this ratio becomes 2:1. What was Siami's age at the time of the birth of her son?
- (a) 28 years (b) 35 years
(c) 21 years (d) 25 years
80. A tap can completely fill a water tank in 8 hours. The water tank has a hole in it through which the water leaks out. The leakage will cause the water tank to get empty in 12 hours. How much time will it take for the tap to fill the water completely in the tank with the hole?
- (a) 16 hours (b) 29 hours
(c) 24 hours (d) 18 hours
81. Correct the sentence by replacing the underlined phrase: 'I am totally opposite in the statement of some of our Managers'.
- (a) Totally oppose to (b) Absolutely oppose by the
(c) Totally opposed to the (d) Completely opposed in the
82. Some people have a _____ need to control all aspects of their lives and top eliminate all _____ of chance. These individuals seldom achieve a sense of fulfilment.
- (a) Habitual.....possessions (b) Dramatic.....factors
(c) Powerful.....nuances (d) Compulsive.....hindrances

83. 'Bouquet' is related to 'Flowers' in the same way as 'Sentence' is related to
(a) Letters (b) Paragraph
(c) Content (d) Words
84. The lawyer had to find innovative arguments for his case, there was just no _____ that he could follow or quote.
(a) Example (b) Itinerant
(c) Style (d) Precedent
85. The soldiers fought splendidly but being out-numbered far out of proportion, they had to _____
(a) Dessicate (b) Recede
(c) Capitulate (d) Contemplate
86. Select a single word that closely describes a person in the habit of pointing out others' faults.
(a) Interioper (b) Officious
(c) Gossamer (d) Gadfly
87. Select the synonym of the word BEGUILE.
(a) Deceive (b) Deny
(c) Dissent (d) Refuse
88. Vivekananda remained a devoted pupil and would often _____ with some fondness, his master's guiding hand that _____ him through life and destiny.
(a) Ponder.....engaged (b) Recount.....steered
(c) Replenish.....advised (d) Narrate.....forwarded
89. Select a suitable figure from the four alternatives that would complete the figure matrix.



- (a) 1 (b) 2
(c) 3 (d) 4
90. Identify the figure that completes the pattern.



- (X) (1) (2) (3) (4)
- (a) 1 (b) 2
(c) 3 (d) 4

97. Rama started walking towards the east. He walked a distance of 5 km, then turned to his right and walked 10 km. He again turned to his right and walked another 15 km. Then he turned to his left and walked 5 km. In which direction is he in relation the starting point?
- (a) South (b) North-east
(c) North-west (d) South-east
98. The positions of the first and the fifth digits in the number 52874691 are interchanged. Similarly, the positions of the second and the sixth digits are interchanged, and so on. Which of the following will be the third digit from the right end after the rearrangement?
- (a) 2 (b) 6
(c) 8 (d) 7
99. If the letters in the word POWERFUL are rearranged as they appear in the English alphabet, then the position of how many letters will remain unchanged after the rearrangement?
- (a) None (b) One
(c) Two (d) Three
100. What will come in place of the question mark (?) in the following sequence?
- SEQUENTIAL EQUENTIAL EQUENTI ? QUEN**
- (a) QUENTI (b) UENTI
(c) QUENT (d) QUE

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