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) Dactyrogyrus (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) Dactyrogyrus

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) Safranine
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. Haematocit is the ratio of ...............to 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) Icthyophthirius 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 in ...........condition.
   (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. Gyrodactyurus (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) Merceptans

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% of 400 + ?% 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.

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90. Identify the figure that completes the pattern.

(a) 1                                 (b) 2
   (c) 3                                 (d) 4
91. Choose the box that is similar to the box formed from the given sheet of paper (X).

![X](image1)

(a) 1 & 3 only  
(b) 1 & 4 only  
(c) 2 & 4 only  
(d) 3 & 4 only

92. Find the number of triangles in the given figure.

![Figure](image2)

(a) 22  
(b) 24  
(c) 26  
(d) 28

93. Select a suitable figure from the Answer Figures that would replace the question mark (?).

**Problem Figures:**

(A) ![Figure](image3)  
(B) ![Figure](image4)  
(C) ![Figure](image5)  
(D) ![Figure](image6)

**Answer Figures:**

(1) ![Figure](image7)  
(2) ![Figure](image8)  
(3) ![Figure](image9)  
(4) ![Figure](image10)  
(5) ![Figure](image11)

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

94. If ‘A*B’ means ‘A is the father of B’, ‘AxB’ means ‘A is the mother of B’ and ‘A#B’ means ‘A is the husband of B’, then which of the following implies that ‘P is the grandson of Q’?

(a) Q#RxS*P  
(b) Q*NxP#R  
(c) Q*L#NxP  
(d) P#NxM*Q

95. Pointing to a boy Zari said ‘He is the son of my grandfather’s only child’. How is the boy related to Meena?

(a) Brother  
(b) Cousin  
(c) Uncle  
(d) Nephew

96. In a row of forty children, P is thirteenth from the left end and Q is ninth from the right end. How many children are there between P and R if R is fourth to the left of Q?

(a) 13  
(b) 14  
(c) 15  
(d) 12
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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