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T. B. C. : CS - 11/12

Test Booklet Series

Serial No. **227447**

C

TEST BOOKLET

O. C. S. Preliminary Examination

(FISHERIES SCIENCE)

Time Allowed : 2 Hours

Maximum Marks : 300

: INSTRUCTIONS TO CANDIDATES :

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET **DOES NOT** HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET OF SAME SERIES ISSUED TO YOU.
2. ENCODE YOUR OPTIONAL SUBJECT CODE AS MENTIONED ON THE BODY OF YOUR ADMISSION CERTIFICATE AND ADVERTISEMENT AT APPROPRIATE PLACES ON THE ANSWER SHEET.
3. ENCODE CLEARLY THE TEST BOOKLET SERIES A, B, C OR D, AS THE CASE MAY BE, IN THE APPROPRIATE PLACE IN THE ANSWER SHEET USING BALL POINT PEN (BLUE OR BLACK).
4. You have to enter your Roll No. on the Test Booklet in the Box provided alongside. **DO NOT** write *anything* *else* on the Test Booklet.
5. This Test Booklet contains 120 items (questions). Each item (question) comprises four responses (answers). You will select the correct response (answer) which you want to mark (darken) on the Answer Sheet. In case, you feel that there is more than one correct response (answer), mark (darken) the response (answer) which you consider the best. In any case, choose **ONLY ONE** response (answer) for each item (question).
6. You have to mark (darken) all your responses (answers) **ONLY** on the **separate Answer Sheet** provided, by using **BALL POINT PEN (BLUE OR BLACK)**. See instructions in the Answer Sheet.
7. All items (questions) carry equal marks. All items (questions) are compulsory. Your total marks will depend only on the number of correct responses (answers) marked by you in the Answer Sheet. There will be negative markings for wrong answers. **25 percent of marks allotted to a particular item (question) will be deducted as negative marking for every wrong response (answer).**
8. Before you proceed to mark (darken) in the Answer Sheet the responses to various items (questions) in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per the instructions in your **Admission Certificate**.
9. After you have completed filling in all your responses on the Answer Sheet and after conclusion of the examination, you should hand over to the Invigilator the *Answer Sheet* and the *Test Booklet* issued to you. You are allowed to take with you the candidate's copy/second page of the Answer Sheet, after completion of the examination, for your reference.

SEAL

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1. Stain precipitate, spaces, air bubbles occurring imperfections seen in slide preparations are known as :
 - (a) Artifacts
 - (b) Aerofacts
 - (c) Ghosts points
 - (d) None of the above
2. In electron microscopy the wavelength can be expressed by the equation :
 - (a) $\lambda = 12.3/\sqrt{E} \text{ \AA}$
 - (b) $\lambda = 4.2/\sqrt{E} \text{ \AA}$
 - (c) $\lambda = 100/\sqrt{E} \text{ \AA}$
 - (d) None of the above
3. Coons (1941) introduced :
 - (a) The fluorescent antibody technique
 - (b) Fluorescence microscopy
 - (c) Electron microscopy
 - (d) Nicol prisms
4. Immunity arises from activities of T-lymphocytes on or near body of cell is called as :
 - (a) Cellular Immunity
 - (b) Tissue Immunity
 - (c) Cell mediated Immunity
 - (d) All of the above
5. Interferon is :
 - (a) An antiviral protein
 - (b) A synthetic drug
 - (c) An antibiotic
 - (d) A lipid derivative
6. Agar-agar is :
 - (a) Derivative of coral
 - (b) Derivative of marine seaweed
 - (c) A glycerol compound
 - (d) An antibiotic from fungi
7. The zone which is the upper most part of the benthic division and territory between high and low water marks of spring tide is called as :
 - (a) Limnetic zone
 - (b) Littoral zone
 - (c) Protundal zone
 - (d) Intertidal zone
8. Paralytic shell fish poison produced by dinoflagellates are toxic to :
 - (a) Fishes
 - (b) Human
 - (c) Dolphins
 - (d) All of the above
9. An organic compound secreted by some algae and fungi which impart musty odour to water is :
 - (a) Saxitoxin
 - (b) Geosmin
 - (c) Neurotoxin
 - (d) None of the above

10. According to Barnes et al (1971) coral reef zone occurs at a depth in between 6 and 14 mts represents by :
- (a) Brain corals
 - (b) Soft corals
 - (c) Encrusting corals
 - (d) Gorgonians
11. The light intensity at which oxygen production by way of photosynthesis and oxygen utilization by way of respiration equals is called :
- (a) Compensation depth
 - (b) Thermocline
 - (c) Compensation point
 - (d) Chemocline
12. The phenomenon by which nutrient rich cool waters from deep layers of sea are brought to the surface under the influence of currents and winds is :
- (a) El Nino
 - (b) Upwelling
 - (c) Downwelling
 - (d) Coriolis force
13. The average wavelength of Seismic waves of sea is :
- (a) 20-80 kms
 - (b) 100-200 kms
 - (c) 400-600 kms
 - (d) 900-1000 kms
14. Rooted hydrophytic plants which do not penetrate into the bottom are :
- (a) Hydrilla
 - (b) Marselia
 - (c) Typha
 - (d) Lemna
15. The word plankton which means wandering was first used by :
- (a) Nelson 1987
 - (b) Hensen 1887
 - (c) Nansen 1897
 - (d) Haechel 1878
16. Pure water has got maximum density at a temperature of :
- (a) 4.00°C
 - (b) 4.16°C
 - (c) 3.96°C
 - (d) 3.90°C
17. Which species of sea turtle found nesting on the coast line at Odisha State ?
- (a) Leather back
 - (b) Green turtle
 - (c) Hawksbill turtle
 - (d) Olive Ridley turtle
18. The plankton which is introduced from other localities are called as :
- (a) Autogenetic plankton

- (b) Euplankton
(c) Allogenic plankton
(d) Pseudo plankton
19. The disease that occurs due to the absence of glucose-6-phosphatase in cells is :
(a) Pompe's disease
(b) Forbe's disease
(c) Von Gierke's disease
(d) Anderson's disease
20. The vitamin that acts as a coenzyme for cathepsins and liver esterases is :
(a) Vitamin C
(b) Vitamin A
(c) Vitamin D
(d) Vitamin B₁
21. The small units of monomers of proteins are called :
(a) Enzymes
(b) Amino acids
(c) Hormones
(d) Vitamins
22. The hybridization of nucleic acids on membranes is a widely used technique in :
(a) Gene cloning
(b) Gene mutations
(c) Gene manipulation
(d) Defaunation
23. The entire heredity material in a cell is called as :
(a) Chromatin
(b) Karyoplasm
(c) Genome
(d) Cell organelle
24. The portions of the chromosomes on either side of the centromere are :
(a) Minisatellites
(b) Chromosome arms
(c) Telomeres
(d) Satellites
25. The spectrophotometric method used for protein estimation is :
(a) Lowry method
(b) Carrol method
(c) Diacetyl mononime method
(d) Nachlas method
26. The first scientist who used the technique of eyestalk ablation to get ovarian development in *Leander serratus* is :
(a) Pamouse
(b) Cuvier

- (c) Rondelet
(d) Fransis Day
27. The term Probiotic was first coined by :
(a) Liley and Stillwell
(b) Fuller
(c) Parket
(d) Havenaar
28. During summer which type of bundh retains water containing breeders ?
(a) Dry bundh
(b) Wet bundh
(c) Shallow bundh
(d) Seasonal bundh
29. The pituitary hormone that plays an important role in promoting the development of gonads, growth, maturity and spawning in carps is :
(a) FSH
(b) GIH
(c) HCG
(d) MIH
30. The average fecundity of the Indian Major Carp, *Catla Catla*, is :
(a) 3-5 lakhs
(b) 2-4 lakhs
(c) 1-3 lakhs
(d) 1.5-3.5 lakhs
31. An initial dose of pituitary gland (per kg body weight) extract administered to the female brood fish is :
(a) 2-3 mg
(b) 5-8 mg
(c) 3-5 mg
(d) 5-10 mg
32. The first attempt at hypophysation in India was made by :
(a) Hussain
(b) Gerbiskii
(c) Hamid Khan
(d) Aschheim
33. "The cooled pellets are ground on corrugated rolls and the output sifted and graded" is :
(a) Bagging
(b) Pelleting
(c) Crumbling
(d) Grinding
34. In fish, spastic convulsions, depigmentation and fragmentation of erythrocytes are caused due to the deficiency of :
(a) Vit. B₁₂
(b) Biotin
(c) Niacin
(d) Thiamine

35. Formation of liquid-filled boils at the tip of uropods of shrimp is the specific sign of which of the following diseases ?
- (a) Muscle necrosis
 - (b) Blisters disease
 - (c) Red disease
 - (d) Gregarine disease
36. The algal species that is responsible for fish kills in culture ponds is :
- (a) *Pharmidium*
 - (b) *Oscillatoria*
 - (c) *Chlorella*
 - (d) *Ergasilus*
37. The number of protozoans in a culture pond can be reduced by treating the pond waters with :
- (a) Malathion
 - (b) Malachite green
 - (c) Glutaraldehyde
 - (d) Trichlorphon
38. In paddy-cum-carp culture, fish are stocked at the rate of :
- (a) 4000-5000/ha
 - (b) 4000-6000/ha
 - (c) 6000-7000/ha
 - (d) 3000-4000/ha
39. The role of the binding agents in shrimp pelleted feed is :
- (a) Disintegration of feed
 - (b) Growth of fungi
 - (c) Prevention of disintegration of feed
 - (d) Supplementing minerals
40. In shrimp commercial feed, butylated hydroxyanisole is being used as :
- (a) Antioxidant
 - (b) Binder
 - (c) Digestive enzyme
 - (d) Mineral
41. Spermatangial clusters are observed in which of these sea weeds ?
- (a) *Hypnea musciformis*
 - (b) *Acanthophora spicifera*
 - (c) *Enteromorpha flexuosa*
 - (d) *Gelidiella acerosa*
42. Black lip pearl oyster is the common name for :
- (a) *Lamellidens corrianus*
 - (b) *Lamellidens marginalis*
 - (c) *Pinctada margaritifera*
 - (d) *Pinctada fucata*
43. The average production of shrimp under extensive farming normally ranges from :
- (a) 1.0 – 1.5 t/ha/crop
 - (b) 2.0 – 2.5 t/ha/crop
 - (c) 5.0 – 5.5 t/ha/crop
 - (d) 1.0 – 2.0 t/ha/crop

44. In sediment, when input of organic matter exceeds the supply of oxygen, anaerobic condition can develop. This reducing condition can be measured as :
- (a) Action Potential
 - (b) Eddy Current
 - (c) Reduction Potential
 - (d) Redox Potential
45. Acidity on pond dykes can be controlled by :
- (a) Arranging tiles on dykes
 - (b) Adding cowdung to water
 - (c) Acid resistant grass species
 - (d) Spraying H_2SO_4 on dykes
46. Imhoff cone is used to measure the quantity of :
- (a) Settleable phospholipids
 - (b) Settleable solids
 - (c) Settleable plankton
 - (d) Settleable copepods
47. Normally the salinity of the sea water ranges from :
- (a) 30-35 ppt
 - (b) 30-40 ppt
 - (c) 25-35 ppt
 - (d) 20-35 ppt
48. The food of protozoa larvae is :
- (a) Artemia
 - (b) Acetes species
 - (c) Egg custard
 - (d) Rotifers
49. The main purpose of establishment of a hatchery is :
- (a) To improve the percentage of survival of hatchings
 - (b) To improve the percentage of the hatching of eggs
 - (c) To reduce the silt deposition in hapas
 - (d) To reduce the percentage of the hatching of eggs
50. The method adopted to avoid sliding in earthen culture ponds is :
- (a) Fencing
 - (b) Sloping
 - (c) Turfing
 - (d) Tilling
51. In a culture pond, the platform like space present between the bund and the area occupied by water is called as :
- (a) Core trench
 - (b) Berm
 - (c) Crown
 - (d) Dry slope
52. The ratio of catla, rohu and mrigal proposed by Alikunhi (1957) for composite fish culture is :
- (a) 3 : 2 : 1

- (b) 5 : 4 : 5
(c) 3 : 3 : 4
(d) 1 : 2 : 4
53. The largest brackish-water lake in India is :
(a) Pulicat Lake
(b) Kolleru Lake
(c) Chilka Lake
(d) Vembanand Lake
54. The scientist who made ecological classification of fishes in 600 B. C. is :
(a) Susreta
(b) Francis Day
(c) Kautilya
(d) Cuvier
55. The primary growth ring in the teleostean bony-ridge scale is called :
(a) Radius
(b) Annulus
(c) Focus
(d) Circulus
56. The fishing zone which has the maximum continental shelf area in the Indian EEZ is :
(a) North – East zone
(b) South – West zone
(c) North – West zone
(d) South – East zone
57. The most productive marine fishing (FAO) area is :
(a) Western Indian Ocean
(b) North West Pacific
(c) South East Pacific
(d) North East Atlantic
58. Fishes that hide their brood in live bivalves are called :
(a) Xerophils
(b) Speleophils
(c) Aerophils
(d) Ostracophils
59. The genus *Gazza* comes under the family of :
(a) Gerreidae
(b) Leiognathidae
(c) Menidae
(d) Sciaenidae
60. The major fishing zone for the lesser sardines is :
(a) North – East
(b) South – West
(c) North – West
(d) South – East
61. The river system that drains into the Arabian Sea is :
(a) Mahanadi

- (b) Cauvery
(c) Krishna
(d) Indus
62. The state having the longest coast line in India is :
(a) Tamil Nadu
(b) Gujarat
(c) Andhra Pradesh
(d) Odisha
63. MSY represents :
(a) An economic equilibrium
(b) Open-access equilibrium
(c) A biological equilibrium
(d) Bio-economic equilibrium
64. Choose the species which is fully marine :
(a) *Parapenaeopsis stylifera*
(b) *Penaeus monodon*
(c) *Fenneropenaeus indicus*
(d) *Metapenaeus dobsoni*
65. Which among the following is an introduced fish in India ?
(a) Tilapia
(b) Catla
(c) Rohu
(d) Mrigal
66. A classic example of semelparity in fishes is :
(a) Tunas
(b) Sardine
(c) Mackerel
(d) Pacific salmon
67. The accessory reproductive nidamental gland complex is absent in :
(a) Octopus
(b) Cuttlefish
(c) Squid
(d) None of the above
68. Fish food is rich in :
(a) Proteins
(b) Vitamins
(c) Carbohydrates
(d) Minerals
69. Which section of the Indian Fisheries Act defines 'Private Water' ?
(a) Sec. 2
(b) Sec. 3 (1)
(c) Sec. 3 (3)
(d) Sec. 5 (1)
70. The Basel Convention is an International agreement to control the :
(a) Fishing within the EEZ
(b) Movement of hazardous waste across state boundaries

- (c) Oil exploration within the EEZ
(d) Movement of ships
71. One marine league is equivalent to how many nautical miles ?
(a) 3
(b) 12
(c) 24
(d) 200
72. The notifications relating to the CRZ are issued by :
(a) The concerned State Government
(b) The Ministry of Home Affairs
(c) The Ministry of Environment and Forests
(d) None of the above
73. Mangroves and wild life habitats within 500 metres of high tide line are listed under which category of the CRZ in India ?
(a) Category I
(b) Category II
(c) Category III
(d) Category IV
74. The peeler crabs are identified among blue sea crabs by the presence of red colour as a thin line mark in their back fin which suggests that they are ready for moulting within :
(a) 1 day
(b) 3 days
(c) 5 days
(d) 8 days
75. The major oceanic straddling fish among the following is :
(a) Sardine
(b) Mackerel
(c) Silver bellies
(d) Tunas
76. In India, trigger fishes are abundant in :
(a) Gulf of Kutch
(b) Orissa Coast
(c) Tamilnadu Coast
(d) Andhra Pradesh Coast
77. The Head Office of MPEDA is located at :
(a) Kolkata
(b) Cuttack
(c) Kochi
(d) Mumbai
78. The date on which the Indian Fisheries Act came into force is :
(a) 24th February, 1897
(b) 4th February, 1897
(c) 24th February, 1980
(d) 1st July, 1987

79. The Coastal Aquaculture Authority Act was passed in India in the year :
- (a) 2005
 - (b) 2006
 - (c) 2008
 - (d) 2010
80. The layer in the ocean where the temperature decreases suddenly with increase in the depth is referred to as :
- (a) Isothermal layer
 - (b) Troposphere
 - (c) Deep sea layer
 - (d) Thermocline
81. Abnormal warming of surface water of Pacific ocean off Peru coast is known as :
- (a) La-Nina
 - (b) Global warming
 - (c) El-Nino
 - (d) None of the above
82. Water stability of diets should be high in the case of :
- (a) Shrimps
 - (b) Trouts
 - (c) Carps
 - (d) Carbs
83. The number of larval stages in *Macrobrachium rosenbergii* is :
- (a) 8
 - (b) 9
 - (c) 10
 - (d) 11
84. A commercial product extracted from brown seaweed is :
- (a) Agar
 - (b) Carrageenan
 - (c) Algin
 - (d) Carotenoids
85. Cat's clay soils have a pH less than :
- (a) 10
 - (b) 7
 - (c) 4
 - (d) 2
86. Which one of the following is Mussel fishery zone of India ?
- (a) Kerala
 - (b) Tamil Nadu
 - (c) Andhra Pradesh
 - (d) Odisha
87. The pearl oyster species abundant in Indian waters is :
- (a) *Pinctada margaritifera*
 - (b) *P. chemnitzii*

- (c) *P. fucata*
(d) *P. atropurpurea*
88. Seasonal shrimp filtration practice in pakkali fields operates during the period from :
(a) April – October
(b) November – April
(c) October – December
(d) June – October
89. Which of the following is most widely used diatom species in shrimp hatcheries ?
(a) *Scenedesmus*
(b) *Navicula*
(c) *Nitzchia*
(d) *Chaetoceros*
90. Induced breeding of carps using a synthetic gonadotropin releasing hormone analogue and a dopamine antagonist is called :
(a) Hypophysation
(b) Linpe method
(c) Wet stripping
(d) None of the above
91. NATP stands for :
(a) National Aquaculture Technology Project
(b) National Animal Science Technology Project
(c) National Agriculture Technology Project
(d) None of the above
92. In training cycle, the first phase is :
(a) Training plans development
(b) Training needs assessment
(c) Design of training programme
(d) None of the above
93. Induction training is also known as :
(a) Refresher training
(b) Pre-service training
(c) Portal or vestibule training
(d) None of the above
94. It is more efficient to study a sample instead of conducting a census in :
(a) Small population
(b) Large population
(c) Both (a) and (b)
(d) None of the above
95. When we attempt to locate participants who are hard to find, we use :
(a) Purposive sampling
(b) Snow ball
(c) Random sampling
(d) None of the above

96. If a distribution is normal, 68% of the populations in the distribution lie :
- (a) Within one standard deviation unit of the mean
 - (b) Within two standard deviation units of the mean
 - (c) Within three standard deviation units of the mean
 - (d) None of the above
97. Pearson Product-moment Correlation Coefficient is denoted by :
- (a) r
 - (b) r^2
 - (c) z^2
 - (d) m
98. The last step in Extension Educational Process is :
- (a) Teaching
 - (b) Evaluation
 - (c) Reconsideration
 - (d) Situation
99. The first Krishi Vigyan Kendra was established in the year :
- (a) 1947
 - (b) 1978
 - (c) 1985
 - (d) 1990
100. Correlation value ranges from :
- (a) + 1 to - 1
 - (b) 0 to + 1
 - (c) 0 to - 1
 - (d) None of the above
101. Summative Evaluation of Fisheries Extension Programme is done :
- (a) During Project Development
 - (b) At the end of the program
 - (c) Any other
 - (d) None of the above
102. Result demonstration is :
- (a) Group Approach
 - (b) Mass Approach
 - (c) Individual Approach
 - (d) None of the above
103. Phenolic compounds as disinfectants are seldom used in processing plants because of their :
- (a) High price
 - (b) Strong odour
 - (c) Repellent properties
 - (d) None of the above
104. Masula boats are commonly used along with :
- (a) Kamataka and AP coast
 - (b) Odisha and AP coast
 - (c) UP and MP rivers
 - (d) HP and Punjab

105. Food poisoning in man as a result of eating smoked, salted or spiced fish is due to :
- (a) *Clostridium botulinum*
 - (b) *Lactobacillus spp*
 - (c) *Pseudomonas spp*
 - (d) None of the above
106. Which of the following is a good preservative ?
- (a) Vinegar
 - (b) Acetic Acid
 - (c) Ascorbic Acid
 - (d) All of the above
107. An effective method, for preserving the fish is freezing by lowering the temperature below 0°C and :
- (a) Mixing the pure salt with ice
 - (b) Mixing the HCL with ice
 - (c) Using ice
 - (d) None of the above
108. Migratory fish like Hilsa are caught by a rectangular :
- (a) Purse net
 - (b) Cast net
 - (c) Dip net
 - (d) Hand net
109. ISO 9000 standards nomenclature for India is :
- (a) IST ISO 9000
 - (b) IS/ISO 9000
 - (c) IS 14000
 - (d) Q 9000
110. The full form of HACCP is :
- (a) Hazard Annealing Central Control Point
 - (b) Hazard Analysis Critical Control Point
 - (c) Horizontal Analysis Critical Central Position
 - (d) None of the above
111. The PUFA concentration of wild *Oncorhynchus mykiss* is about :
- (a) 1.237
 - (b) 3.942
 - (c) 0.049
 - (d) 0.123
112. The spoilage bacteria are characterized by their ability to produce H₂S and reduce the :
- (a) Trimethylamine oxide to trimethylamine
 - (b) Acetylene oxide to Acetyl-CoA
 - (c) Total volatile nitrogen
 - (d) Indole to Tryptophan

113. Fish flesh starts to spoil visibly when bacterial level rise above :
- (a) 10^6 organisms/g
 - (b) 10^5 organisms/g
 - (c) 10^7 organisms/g
 - (d) 10^4 organisms/g
114. Histamine production in Scombrotoxic fish increases with :
- (a) Temperature
 - (b) Oxygen
 - (c) Water
 - (d) None of the above
115. The blotted DNA is tightly bound to membrane but can still hybridize to labelled nucleic acid probe in :
- (a) Western blotting
 - (b) Southern blotting
 - (c) Northern blotting
 - (d) None of the above
116. *Nitrosomonas* converts :
- (a) Ammonia to Nitrite
 - (b) Nitrite to Ammonia
 - (c) Nitrite to Nitrate
 - (d) Nitrogen to Nitrous oxide
117. *Nitrospira* converts nitrite to nitrate in habitat :
- (a) Marine
 - (b) Freshwater
 - (c) Soil
 - (d) All of the above
118. *Vibrio cholera* is a :
- (a) Gram negative, curved rod
 - (b) Gram positive, bacillus
 - (c) Gram positive spore forming rod
 - (d) Gram positive staphylococcus rod
119. Cell wall of Archaeobacteria does not contain :
- (a) Cellulose
 - (b) Peptidoglycan
 - (c) Pseudonurein
 - (d) All of the above
120. Prions are important Microbial group having essential Macromolecule named as :
- (a) Lipid
 - (b) Chitin
 - (c) Cellulose
 - (d) Protein
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SPACE FOR ROUGH WORK

SEAL