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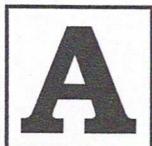
**Previous Year Paper
Paper-II
22 Dec, 2024**



DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

Test Booklet Series

T. B. C. : AFO - 2/24



TEST BOOKLET

ASSISTANT FISHERIES OFFICER

PAPER-II

Sl. No.

2073

Time Allowed : 2½ Hours

Maximum Marks : 400

: 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 THE SAME SERIES ISSUED TO YOU.
2. 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).
3. 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.
4. **YOU ARE REQUIRED TO FILL UP & DARKEN ROLL NO., TEST BOOKLET / QUESTION BOOKLET SERIES IN THE ANSWER SHEET AS WELL AS FILL UP TEST BOOKLET / QUESTION BOOKLET SERIES AND SERIAL NO. AND ANSWER SHEET SERIAL NO. IN THE ATTENDANCE SHEET CAREFULLY. WRONGLY FILLED UP ANSWER SHEETS ARE LIABLE FOR REJECTION AT THE RISK OF THE CANDIDATE.**
5. This Test Booklet contains **200** items (questions). Each item (question) comprises of four responses (answers). You have to 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), you should 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 INK)**. 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 shall be no negative marking for wrong response (answer).**
8. Before you proceed to mark (darken) in the Answer Sheet the responses (answers) to various items (questions) in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per the instructions sent to you with your **Admission Certificate**.
9. After you have completed filling in all your responses (answers) on the Answer Sheet and after conclusion of the examination, you should hand over to the Invigilator the Answer Sheet issued to you. You are allowed to take with you the candidate's copy / second page of the Answer Sheet along with the **Test Booklet**, after completion of the examination, for your reference.
10. Sheets for rough work are appended in the Test Booklet at the end.

SEAL

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

1. The potential of marine fish production from the Indian EEZ is

- (A) 3.9 million tonnes
- (B) 3.0 million tonnes
- (C) 5.4 million tonnes
- (D) 4.5 million tonnes

2. Which of the following States has the highest marine fish production in India?

- (A) Maharashtra
- (B) Gujarat
- (C) Kerala
- (D) Tamil Nadu

3. The major gear used to exploit tunas from the Indian coastal waters, is

- (A) drift gillnets
- (B) trawlers
- (C) purse seines
- (D) trolling

4. The scientific name of frigate tuna is

- (A) *Auxis thazard*
- (B) *Auxis rochei*
- (C) *Thunnus tonggol*
- (D) *Katsuwonus pelamis*

5. *Choodavalai* used to exploit the Whitebaits from southwest coast of India is a type of

- (A) gillnet
- (B) shore seine
- (C) ring seine
- (D) bag net

6. Whitefish is also known as

- (A) False trevally
- (B) Jew fish
- (C) Croaker
- (D) Thread fin

7. The example of Slipmouth is

- (A) *Leiognathus bindus*
- (B) *Harpodon nehereus*
- (C) *Nemipterus japonicus*
- (D) None of the above

8. The maximum production of Chinese pomfret is from the State of

- (A) Karnataka
- (B) Kerala
- (C) Maharashtra
- (D) Orissa

9. The species having topmost production in the world is

- (A) *Peruvian anchoveata*
- (B) *Alaskan pollock*
- (C) *Chub mackerel*
- (D) *Blue whiting*

10. The area of EEZ along the west coast of India is

- (A) 0.86 million sq.km
- (B) 0.90 million sq.km
- (C) 0.56 million sq.km
- (D) 1.0 million sq.km

11. The species of Mackerel found rarely along the southeast coast is
(A) *Rastrelliger kanagurta*
(B) *Rastrelliger brachysoma*
(C) *Rastrelliger faughnii*
(D) None of the above

12. The dominant species of ribbon fish occurring in the ribbon fish landings is
(A) *Trichiurus lepturus*
(B) *Trichiurus russeli*
(C) *Lepturocanthus savala*
(D) *Lepturocanthus gangeticus*

13. Leatherjackets are included in which of the following groups of fishes?
(A) Carangids
(B) Sciaenids
(C) Whitebaits
(D) Threadfin breams

14. The scientific name of short neck clam is
(A) *Paphia malabarica*
(B) *Tapes brugueiri*
(C) *Perna viridis*
(D) *Meretrix casta*

15. The example of deep sea shrimp is
(A) *Metapenaeopsis jerryi*
(B) *Aristeus alcocki*
(C) *Penaeopsis jerryi*
(D) All of the above

16. India has got an EEZ of
(A) 2.02 m sq.km
(B) 2.05 m sq.km
(C) 2.0 m sq.km
(D) 2.1 m sq.km

17. _____ net is popularly used to exploit the Bombay duck along northwest coast of India.
(A) Disco net
(B) Rampani
(C) Long line
(D) None of the above

18. The Indian marine fisheries sector is characterized by
(A) multigear fisheries
(B) multispecies fisheries
(C) multigear and multispecies fisheries
(D) None of the above

19. _____ have got well developed swim bladders.
(A) Sciaenids
(B) Flying fishes
(C) Half beaks
(D) Whitebaits

20. _____ State has got the highest standing crop of seaweeds in India.
(A) Gujarat
(B) Tamil Nadu
(C) Maharashtra
(D) Orissa

21. The objective(s) of fisheries management is/are

- (A) maintenance of maximum spawning stock
- (B) maintenance of early stock
- (C) maintenance of minimum spawning stock
- (D) All of the above

22. Holistic models are

- (A) more data demanding
- (B) age-structured
- (C) less data demanding
- (D) None of the above

23. The Beverton and Holt Yield per Recruit Model assumes that

- (A) recruitment is constant
- (B) natural mortality is variable
- (C) fishing mortality is variable
- (D) there is no complete mixing within a stock

24. Catch per unit effort data gives a measure of

- (A) relative stock abundance
- (B) absolute stock abundance
- (C) fishing effort
- (D) None of the above

25. Von Bertalanffy Growth Equation is used to determine growth in terms of _____ as a function of time.

- (A) length and weight
- (B) weight
- (C) length
- (D) None of the above

26. MSY refers to

- (A) Maximum Social Yield
- (B) Minimum Social Yield
- (C) Maximum Sustainable Yield
- (D) Minimum Sustainable Yield

27. The mesh size of Cod end determines the gear selectivity in

- (A) gillnet
- (B) trawl net
- (C) cast net
- (D) longline

28. Age of massive maturation is denoted by

- (A) $T_{50\%}$
- (B) T_m
- (C) T_C
- (D) $T_{C_50\%}$

29. Growth overfishing is an overfishing of

- (A) young fish
- (B) adult fish
- (C) spent individuals
- (D) None of the above

30. Instantaneous rate of natural mortality is denoted by

- (A) M
- (B) F
- (C) Z
- (D) R

31. L_∞ refers to

- (A) minimum length
- (B) length at maturation
- (C) asymptotic length
- (D) mean length

32. Fox model is an example of

- (A) analytical model
- (B) surplus production model
- (C) virtual population analysis
- (D) None of the above

33. Predation is categorized into

- (A) natural mortality
- (B) fishing mortality
- (C) total mortality
- (D) None of the above

34. _____ is a useful tool for determination of optimum mesh size for a gear.

- (A) Gear selectivity
- (B) Exploitation rate
- (C) CPUE
- (D) None of the above

35. _____ determines the number of survivors in a cohort of a fish.

- (A) Virtual population analysis
- (B) Swept area method
- (C) Modal progression analysis
- (D) None of the above

36. Rikhter and Effanov formula is used to estimate

- (A) natural mortality
- (B) fishing mortality
- (C) total mortality
- (D) None of the above

37. _____ is a type of output control.

- (A) Bag limit
- (B) Mesh size regulation
- (C) Closed season
- (D) Closed area

38. The proportion of number or biomass of a fish stock removed by fishing is

- (A) exploitation rate
- (B) exploitation ratio
- (C) fishing effort
- (D) None of the above

39. The graph of logarithm of numbers caught plotted against respective age is

- (A) catch curve
- (B) selection curve
- (C) selection ogive
- (D) growth curve

40. Inverse von Bertalanffy equation is used to convert

- (A) length into ages
- (B) ages into lengths
- (C) lengths into weight
- (D) None of the above

41. *Macrobrachium rosenbergii* passes through ____ number of larval stages.

(A) 11
(B) 10
(C) 9
(D) 13

42. Torsion is the characteristic of

(A) Bivalvia
(B) Gastropoda
(C) Cephalopda
(D) Polyphora

43. The larva of *Artemia* is known as

(A) zoea
(B) alima
(C) phyllosoma
(D) nauplius

44. The integument enclosing the visceral mass in Mollusca is known as

(A) pallium
(B) ostracum
(C) periostracum
(D) spicules

45. ____ has rhipidoglossate radula.

(A) Cyprae
(B) Diadora
(C) Conus
(D) Patella

46. Contractile filaments used for sensing food in Scaphoda are known as

(A) osphradium
(B) captacula
(C) tentacles
(D) antennae

47. The larvae of lobster is known as

(A) zoea
(B) mysis
(C) phyllosoma
(D) nauplius

48. In ____, the mantle is studded with spicules.

(A) *Polyplacophora*
(B) *Monoplacophora*
(C) *Aplacophora*
(D) *Scaphopoda*

49. In *Stomatopoda*, gills are present at the base of

(A) thorax
(B) abdomen
(C) mouth
(D) legs

50. *Conus* has _____ type of radula.

(A) docoglossate
(B) taxoglossate
(C) rachiglossate
(D) taenioglossate

51. Thin leaf like processes attached to each maxillipeds of Crustaceans are known as
(A) endopodite
(B) epipodite
(C) uropod
(D) maxilla

52. Operculum in gastropods is secreted by
(A) mantle cells
(B) cuticular cells
(C) glandular cells
(D) dermal cells

53. Larva of *Squilla* is known as
(A) alima
(B) megalopa
(C) nauplius
(D) veliger

54. *Cypraea* has ____ radula.
(A) rhipidoglossate
(B) taxoglossate
(C) taenioglossate
(D) docoglossate

55. Cypris larva is present in
(A) *Artemia*
(B) *Squilla*
(C) *Balanus*
(D) Lobster

56. Shell in *Bivalvia* is the secretion of epithelial cells in
(A) viscera
(B) mantle
(C) gonad
(D) ctenidia

57. _____ is a digestive gland which is extended over the posterior portion of hindgut.
(A) Gastric mill
(B) Hepatopancreas
(C) Scaphognathite
(D) Confrontle

58. Osphradium acts as a _____ organ.
(A) sense
(B) defense
(C) reproductive
(D) respiratory

59. Hinge dentition in *Arcidae* is
(A) desmodont
(B) taxodont
(C) pachyodont
(D) dysodont

60. Subclass belonging to Class Aplacophora is
(A) Rostroconchia
(B) Caudofoveata
(C) Prosobranchia
(D) Scaphopoda

61. In _____, gills are present to the right and behind the heart.

- (A) Prosobranchia
- (B) Opisthobranchia
- (C) Pulmonata
- (D) Rostroconchia

62. Tusk shells belong to Class

- (A) Monoplacophora
- (B) Scaphopoda
- (C) Aplacophora
- (D) Polypachophora

63. Non-penaeid prawns have _____ naupli stages.

- (A) 8
- (B) 7
- (C) 6
- (D) 9

64. Penaeid prawns have 17 _____ stages.

- (A) naupli
- (B) post-larva
- (C) zoea
- (D) mysis

65. Hagfishes belongs to the order

- (A) Petromyzontiformes
- (B) Clupeiformes
- (C) Myxiniformes
- (D) Perciformes

66. _____ has its dorsal fin modified into a luring filament.

- (A) Catfish
- (B) Carp
- (C) Angler fish
- (D) Rasbora

67. *Rastrelliger kanagurta* is locally known as

- (A) Karkata bangda
- (B) Lubluba bangda
- (C) Bombil
- (D) Renvi

68. Which of the following fishes belongs to family Stromatidae?

- (A) *Rhincodon typus*
- (B) *Sardinella longiceps*
- (C) *Saurida tumbil*
- (D) *Pampus chinensis*

69. Sciaenids have well developed

- (A) pyloric caecae
- (B) stomach
- (C) gills
- (D) air bladder

70. *Ravas* belongs to family

- (A) Carangidae
- (B) Polynemidae
- (C) Engraulidae
- (D) Clupeidae

71. Which of the following fishes is known as lamprey?

(A) *Myxine*
(B) *Petromyzon*
(C) *Bombay duck*
(D) *Sting ray*

72. Scientific name of ladyfish is

(A) *Atropus atropus*
(B) *Silago sihama*
(C) *Saurida tumbil*
(D) *Elops macnata*

73. Trilobed caudal fin is the character of

(A) Chorbombil
(B) Kap
(C) Bombil
(D) Saranga

74. Which one of the following is the family of solefish?

(A) Cynoglossidae
(B) Mobiidae
(C) Stromatidae
(D) Carangidae

75. What is the scientific name of silver carp?

(A) *Ctenopharyngodon idella*
(B) *Catla catla*
(C) *Hypothalmichthys molitrix*
(D) *Cyprinus carpio*

76. Pony fishes belong to family

(A) Psettodidae
(B) Leognathidae
(C) Cynoglossidae
(D) Mugilidae

77. Fastest swimming invertebrate is

(A) *Sepia*
(B) *Loligo*
(C) *Octopus*
(D) Prawn

78. Mantis shrimp belongs to order

(A) Isopoda
(B) Natantia
(C) Brachiura
(D) Stomatopoda

79. The term Taxonomy was first proposed by

(A) Dr. Bal & Rao
(B) Dr. Randolle
(C) Dr. Candolle
(D) Dr. Samson

80. A poisonous shelled mollusk is

(A) *Teredo*
(B) *Conus*
(C) *Xancus*
(D) *Babylonia*

81. Scientific name of Sunset shell is
(A) *Sunetta scripta*
(B) *Meretrix meretrix*
(C) *Siliqua radiata*
(D) *Trochus niloticus*

82. The largest living arthropod in the world is
(A) Mantis shrimp
(B) Oceanic squid
(C) Japanese spider crab
(D) American crayfish

83. An example of pedunculate barnacle is
(A) *Lithoglyptas spp.*
(B) *Lepas bengalensis*
(C) *Balanus amphitrites*
(D) *Sylon spp.*

84. Common English name of *Fenneropenaeus merguiensis* is
(A) white shrimp
(B) kuruma shrimp
(C) banana prawn
(D) Indian tiger

85. In some crustacean, blood is red coloured due to
(A) haemoglobin
(B) erythrocroruin
(C) haemocyanin
(D) blood lymph

86. Three spots on the carapace is an important character of
(A) *Neptunnus sanguinolentus*
(B) *Neptunnus pelagicus*
(C) *Chrybdis cruciata*
(D) *Scylla serrata*

87. The green mussel found along the Indian coast is
(A) *Perna indica*
(B) *Perna viridis*
(C) *Pinna nigra*
(D) *Pinctada fucata*

88. A living fossil with coiled external shell belonging to Class Cephalopoda is
(A) *Xancus*
(B) *Nautilus*
(C) *Teredo*
(D) *Octopus*

89. A single ventral rostral tooth is an example of
(A) tiger shrimp
(B) banana shrimp
(C) brown shrimp
(D) flower

90. Most crustaceans have blue blood due to presence of
(A) haemoglobin
(B) erythrocroruin
(C) haemocynine
(D) haemolymph

91. Which is an integument of posterior dorsal border of head extending back over the body?

(A) Somite
(B) Carapace
(C) Telson
(D) Cephalothorax

92. _____ crustaceans occur in brackish water with temperature above 30 °C.

(A) Cumacean
(B) Mysid
(C) Thermobaena
(D) Isopod

93. Presence of seventh abdominal somite is an external morphological character of subclass

(A) Hoplocarida
(B) Eumalacostreca
(C) Phyllocarida
(D) Malacostreca

94. Chiton is an example of Class

(A) Aplacophora
(B) Polyplacophora
(C) Monoplacophora
(D) Scapopoda

95. A freshwater mussel used for production of pearls is

(A) *Saccostrea cuculata*
(B) *Pinctada fucata*
(C) *Lamellidens marginalis*
(D) *Crassostrea rivularis*

96. Chalky type of internal shell of cuttlefish is called as

(A) fan shell
(B) cuttlebone
(C) cuttle pad
(D) cuttle stick

97. The total area of reservoirs in India is _____ million ha.

(A) 5.4
(B) 3.15
(C) 1.24
(D) 2.21

98. Based on the data on fish yield collected by CIFRI, the average fish production from the riverine resources in India is only

(A) 300 g/km
(B) 400 g/km
(C) 500 g/km
(D) 600 g/km

99. The Directorate of Coldwater Fisheries Research (DCFR) is located at _____ and formerly known as NRCCWF.

(A) Bhimtal
(B) Kochi
(C) Chennai
(D) Himachal Pradesh

100. _____ are lentic water bodies of natural origin which are formed due to tectonic movement of the earth's crust.

(A) Lakes
(B) Ponds
(C) Beels
(D) Reservoirs

101. _____ is gifted with many extensive water bodies commonly known as beels.

- (A) Assam
- (B) Uttar Pradesh
- (C) Madhya Pradesh
- (D) Maharashtra

102. Inland water resources in India are diverse and comprised of _____ km of rivers.

- (A) 29000
- (B) 30000
- (C) 50000
- (D) 10000

103. Fry and fingerlings collection from _____ river system is made usually by cast and drag nets.

- (A) Ganga
- (B) Brahmaputra
- (C) Peninsular
- (D) Indus

104. One of the peculiarities of the Kerala coastal zone is the presence of a number of backwaters or estuary locally known as

- (A) Kumbala
- (B) Payal
- (C) Sundarban
- (D) Kayal

105. _____ river originates from a glacier in Tibet and has a combined length of 4025 km.

- (A) Brahmaputra
- (B) Ganga
- (C) Indus
- (D) Mahanadi

106. According to Groombridge and Jenkins (1998) there are 30 world river basins marked as global priorities for the protection of aquatic biodiversity, out of that _____ are from India.

- (A) 9
- (B) 10
- (C) 11
- (D) 12

107. CIFRI is conducting research on fish pass and has designed _____ type fish passes for some upcoming dams in the river of north eastern India.

- (A) pool
- (B) denil
- (C) deep baffled channel
- (D) fish lock

108. _____ are collected in Ganga river system from one to two feet of deep water by disturbing the bottom and scooping them with a gamcha.

- (A) Spawn
- (B) Eggs
- (C) Fry
- (D) Fingerlings

109. _____ estuarine system on the Indian coast, one of the largest estuarine system in the country covering a major portion of the gangetic delta.

- (A) Hooghly-Matlah
- (B) Mahanadi
- (C) Narmada
- (D) Peninsular

110. Floodplain and wetlands area of India is _____ million hectare.

- (A) 0.2
- (B) 0.3
- (C) 0.4
- (D) 0.5

111. According to Dr. Ayyapan, DG of ICAR, India is home to more than _____ % of global fish biodiversity with 2200 species of fish and shellfish in the marine and inland waters.

- (A) 10
- (B) 20
- (C) 30
- (D) 40

112. There are _____ major rivers in India covering 83% of the drainage basin and account for 85% of the surface flow.

- (A) 14
- (B) 16
- (C) 18
- (D) 20

113. _____ is a classical example of anadromous fishes affected due to obstruction of their migratory pathway by dams.

- (A) *Tenualosa ilisha*
- (B) *Clarias batrachus*
- (C) Silver carp
- (D) Common carp

114. _____ are the sources of precious germplasm and breeding ground for a host of fish species.

- (A) Canals
- (B) Reservoirs
- (C) Rivers
- (D) Ponds

115. Ponds and tanks resources of India have the production potential level _____ kg/ha/yr.

- (A) 5000–10000
- (B) 2000–3000
- (C) 1000–2000
- (D) 10000–20000

116. Which is **not true** regarding modified types of scales, bony plates?

- (A) They are present in fish such as sturgeons
- (B) They are present in fish such as South American catfishes
- (C) They are present in fish such as flounders
- (D) They are present in fish such as pipefishes and seahorses

117. Tiny placoid type of scales is present in

- (A) sharks
- (B) mackerel
- (C) sciaenids
- (D) pink perch

118. The most solid portion of skull or braincase of fishes is called as

- (A) centrum
- (B) neurocranium
- (C) hyomandibular
- (D) quadrate

119. Which one is **false** regarding fish muscles?

- (A) White muscles has many capillaries per cubic millimeter
- (B) Red muscles has many capillaries per cubic millimeter
- (C) Red muscles has high concentration of hemoglobin
- (D) White muscles has less capillaries per cubic millimeter

120. _____ fish is an example of walking catfish.

- (A) *Clarias batrachus*
- (B) *Ictalurus punctatus*
- (C) *Anabas testiduenius*
- (D) *Anguilla Anguilla*

121. _____ is a process of production of all female species.

- (A) Oogenesis
- (B) Vitellogenesis
- (C) Hybridogenesis
- (D) Heterosis

122. _____ is the most common measure of reproductive potential in fishes.

- (A) Fecundity
- (B) Reproductive effort
- (C) Ovulation
- (D) Fertility

123. _____ is a big bang reproduction where the adults spawn and die as in Pacific Salmon.

- (A) Iteroparity
- (B) Semelparity
- (C) Oviparity
- (D) Viviparity

124. Which component detects sound in fishes?

- (A) Lateral line
- (B) Brain
- (C) Olfactory receptors
- (D) Cranial nerves

125. _____ pigments in fish skin are responsible for bright red, yellow and green colour to fishes.

- (A) Melanin
- (B) Purines
- (C) Guanines
- (D) Carotenoid

126. Which of the following is **not** the basic method used in taxonomic studies?

- (A) Colour patterns
- (B) Karyotypes
- (C) Electrophoresis
- (D) Feeding behavior

127. The _____ gland is used primarily for the excretion of sodium and chloride ions in fishes.

- (A) rectal
- (B) renal
- (C) pineal
- (D) thymus

128. Oculomotor muscles are effectively attached to

- (A) jaws
- (B) eyes
- (C) gill arches
- (D) fin rays

129. Which one of the following is different from the endocrine glands?

- (A) Chromaffin tissue
- (B) Interrenal tissue
- (C) Corpuscles of stannius
- (D) Intestinal vein

130. _____ pairs of cranial nerves are associated with the fish brain.

- (A) 15
- (B) 13
- (C) 10
- (D) 8

131. In _____ fish lid like nictitating membrane is present in eyes.

- (A) ray
- (B) shark
- (C) flatfish
- (D) sawfish

132. Cosmoid, ganoid and bony-ridge are _____ types of fish scales.

- (A) non-placoid
- (B) placoid
- (C) naked
- (D) non-naked

133. In _____ species, the stomach is most often sac-shaped similar to that in humans.

- (A) fish eating
- (B) herbivorous
- (C) carnivorous
- (D) omnivorous

134. In typical carnivorous fishes gastric acidity of _____ range is present in the stomach.

- (A) 2.4 to 3.6
- (B) 1.4 to 2.3
- (C) 3.5 to 4.5
- (D) 4.5 to 5.5

135. _____ organ in fishes acts as a storage organ for fats and carbohydrates besides its role in digestion.

- (A) Gall bladder
- (B) Pyloric caeca
- (C) Liver
- (D) Spleen

136. The minerals iron, copper and cobalt functions for _____ in fish.

- (A) metabolism
- (B) respiration
- (C) structural development
- (D) regulating osmotic balance

137. Eyes become opaque and the growth ceases due to deficiency of

- (A) vitamin B2 (Riboflavin)
- (B) vitamin B1 (Thiamine)
- (C) vitamin B6 (Pyridoxine)
- (D) vitamin B12 (Cobalamin)

138. The _____ is the main route of blood transport from the gills to the body of fish.

- (A) ventral aorta
- (B) efferent branchial arteries
- (C) afferent branchial artery
- (D) dorsal aorta

139. The principal blood plasma protein _____ of fish controls osmotic pressure.

- (A) albumin
- (B) lipoproteins
- (C) globulins
- (D) fibrinogen

140. _____ may be defined as the chemical changes in living cells by which energy is provided for vital processes and activities.

- (A) Diffusion
- (B) Dissociation
- (C) Metabolism
- (D) Absorption

141. Respiration in tropical catfishes such as *Hoplosternum*, *Ancistrus* and *Plecostomus* take place through

- (A) buccal cavity
- (B) gut
- (C) skin
- (D) lungs

142. Fish living in warmer water generally have _____ oxygen consumption rate than those in cooler water.

- (A) higher
- (B) lower
- (C) minimum
- (D) very low

143. RBCs and WBCs are formed from

- (A) blood corpuscles
- (B) spleen
- (C) hemocytoblast precursor cells
- (D) Leydig organ

144. _____ gland is found only in elasmobranchs and the coelacanth for excretion of ions.

- (A) Rectal
- (B) Adrenal
- (C) Pituitary
- (D) Thymus

145. In sharks the pairs of gill filaments are separated by

- (A) arches
- (B) fleshy septum
- (C) lamellar membranes
- (D) epithelial cells

146. _____ blood cells are usually the most abundant cells in fish blood.

- (A) White blood cells (WBCs)
- (B) Leukocytes
- (C) Red blood cells (RBCs)
- (D) Monocytes

147. Example of fish carrying no hemoglobin in their blood at all, is

- (A) Antarctic crocodile icefishes
- (B) Australian lungfishes
- (C) Pacific Salmon
- (D) American Eel

148. The teleost heart is fueled by

- (A) carbohydrates
- (B) carbohydrates and ketone bodies
- (C) carbohydrates and fatty acids
- (D) carbohydrates and proteins

149. Identify the fish group which excretes urea as the primary nitrogenous end product.

- (A) Teleost fishes
- (B) Lungfishes
- (C) Elasmobranch fishes
- (D) None of the above

150. Age and maturity are usually the best predictors of _____ in fishes.

- (A) absolute growth rates
- (B) relative growth rates
- (C) approximate growth rates
- (D) convertible growth rate

151. The total genetic contribution of organism is called

- (A) genome
- (B) codon
- (C) Both (A) and (B)
- (D) None of the above

152. Feeding habit of *Macrobrachium rosenbergii* is

- (A) herbivore
- (B) carnivore
- (C) omnivore
- (D) None of the above

153. Induced breeding and seed production technology for Grouper was developed by

- (A) CIBA
- (B) CIFA
- (C) CIIFT
- (D) CMFRI

154. Gynogenesis occurs naturally in some fishes belonging to the family

- (A) Poeciliidae
- (B) Cyprinidae
- (C) Cyprinodontidae
- (D) None of the above

155. Which is mycotoxin?

- (A) Aflatoxin
- (B) T-2 toxin
- (C) Zearalenone
- (D) All of the above

156. Which country is the largest producer of pearl?

- (A) India
- (B) USA
- (C) Japan
- (D) Philippines

157. Deep sea lobster is

- (A) Panulirus ornatus
- (B) Panulirus homarus
- (C) Puerulus sewelli
- (D) None of the above

158. Which of the following is referred to as green crab?

- (A) Scylla oceanica
- (B) Scylla serrata
- (C) Scylla paramamosain
- (D) None of the above

159. Gear used for catch of Bombay duck is

- (A) shore seine
- (B) gillnet
- (C) dol net
- (D) trawl net

160. The common marine blue green algae responsible for causing red tide is

- (A) *Spirulina* sp.
- (B) *Nostoc* sp.
- (C) *Trichodesmium* sp.
- (D) *Microcystis* sp.

161. *Engraulis ringens* is commonly known as

- (A) Chinese anchovy
- (B) Indian anchovy
- (C) Peruvian anchovy
- (D) None of the above

162. PCR method for detection of *Vibrio cholerae* was standardized by

- (A) CIFE
- (B) CIFT
- (C) CCMB
- (D) CMFRI

163. Captive breeding of sand lobster was successfully carried out by

- (A) CMFRI
- (B) CIFT
- (C) CIBA
- (D) NIO

164. Cloning vectors which are used in recombinant DNA technology are

- (A) plasmid, bacteriophages
- (B) cosmids
- (C) viruses
- (D) All of the above

165. DNA polymerase is isolated from

- (A) *Thermus aquaticus*
- (B) *Aeromonas*
- (C) *Pseudomonas*
- (D) All of the above

166. In culture shrimps, feeding rate is adjusted which is based on

- (A) estimated survival
- (B) feed consumption
- (C) individual body weight
- (D) All of the above

167. Sampling method in which population is divided into subpopulation of equal size, is

- (A) systematic sampling
- (B) random sampling
- (C) multistage sampling
- (D) stratified sampling

168. Sex linked inheritance in fish was first described by

- (A) T. J. Pandian
- (B) Johannes Schmidt
- (C) Zhu
- (D) None of them

169. The ability of an individual to cope with his environment is called

- (A) behaviour
- (B) talent
- (C) intelligence
- (D) psychology

170. Interspecific and intergeneric hybridization produce

- (A) viable and fertile offsprings
- (B) non-viable offsprings
- (C) better growth
- (D) better survival

171. The major advantage of encapsulated diet is

- (A) easy to consume
- (B) water quality is not spoiled
- (C) specified nutritional requirement
- (D) easy to handle

172. Feeding rate is estimated by

- (A) multiplying the weight by conversion rate of feed used
- (B) estimating the approximate number of larvae to be fed
- (C) calculating the biomass
- (D) estimating the mortality rate

173. Ammonia concentration is toxic to fish beyond

- (A) 0.05 mg/l
- (B) 0.5 mg/l
- (C) 0.75 mg/l
- (D) 10.0 mg/l

174. The common name of *Betta splendens* is

- (A) Angel fish
- (B) Swordtail
- (C) Platy
- (D) Siamese fighter

175. Digestion of protein and lipid is efficient in

- (A) carnivorous fishes
- (B) herbivorous fishes
- (C) detritivorous fishes
- (D) All of the above

176. Soil having equal proportion of sand, silt and clay is called

- (A) sandy soil
- (B) loamy soil
- (C) clayey soil
- (D) None of the above

177. Hybridoma is a cell formed by fusion of

- (A) melanin cells with B lymphocyte
- (B) meninges cells with antibody producing cell
- (C) myeloma cell with T lymphocyte
- (D) myeloma cell with B lymphocyte

178. When a single gene influences the expression of more than one trait, then the gene is known as

- (A) pleiotropism
- (B) epistatic gene
- (C) multiple gene
- (D) multiple alleles

179. The close association of two or more genes on a single chromosome usually inherited is called

- (A) crossing over
- (B) linkage
- (C) pleiotropism
- (D) epistasis

180. Chemical name of dolomite is

- (A) calcium carbonate
- (B) calcium magnesium carbonate
- (C) calcium oxide
- (D) calcium hydroxide

181. Who is the father of DNA fingerprinting?

- (A) Leeuwenhoek
- (B) Aristotle
- (C) Paul Berg
- (D) Alec Jeffreys

182. Which one is agar yielding seaweed?

- (A) *Sargassum*
- (B) *Gracilaria*
- (C) *Ulva*
- (D) *Enteromorpha*

183. Which one of the following is called as Banana shrimp?

- (A) *Penaeus semisulcatus*
- (B) *Penaeus indicus*
- (C) *Penaeus merguiensis*
- (D) None of the above

184. The terms epifauna and infauna are related with

- (A) neustons
- (B) nektons
- (C) benthos
- (D) profundal fauna

185. Cattail is the common name of

- (A) *Hydrilla*
- (B) *Vallisneria*
- (C) *Typha*
- (D) *Pistia*

186. Which one of the following is dinoflagellate?

- (A) *Chlamydomonas*
- (B) *Peridinium*
- (C) *Volvox*
- (D) *Eudorina*

187. One-eyed giant is the name of

- (A) *Daphnia*
- (B) *Euglena*
- (C) *Cyclops*
- (D) None of the above

188. Name the enzyme of retroviruses, which is essential for their replication.

- (A) RNA dependent RNA polymerase
- (B) Reverse transcriptase
- (C) DNA gyrase
- (D) Taq DNA polymerase

189. Primary lymphoid organ in fish is
(A) intestine
(B) bone marrow
(C) thymus
(D) pancreas

190. *Labeo fimbriatus* is commonly known as
(A) Cauvery carp
(B) Big mouth carp
(C) White carp
(D) None of the above

191. Saponin causes
(A) haemolysis of white blood corpuscles
(B) haemolysis of red blood corpuscles
(C) respiratory system
(D) None of the above

192. In fishes heart comprises
(A) one auricle and one ventricle
(B) two auricles and one ventricle
(C) two ventricles and one auricle
(D) two auricles and no ventricle

193. In the fishes the blood circulation is called
(A) double circulation
(B) arterial circulation
(C) venous circulation
(D) arterial and venous circulation

194. Larva of freshwater bivalve is
(A) veliger
(B) glochidium
(C) trochophore
(D) ammocetae

195. Scientific name of big eye tuna is
(A) *Auxis thazard*
(B) *Thunnus tonggol*
(C) *Thunnus obesus*
(D) *Euthynnus affinis*

196. Mosquitofish (*Gambusia affinis*) are
(A) viviparous and live bearer
(B) oviparous
(C) ovoviviparous
(D) None of the above

197. Internal ear of fishes act as
(A) balancer
(B) pressure detector
(C) temperature detector
(D) organ of hearing

198. Placoid scales occurs in
(A) bony fishes
(B) lizard
(C) cartilaginous fishes
(D) toad

199. Air bladder in a fish **does not** help in
(A) respiration
(B) excretion
(C) movement
(D) sound production

200. The name plankton is coined by
(A) Richter
(B) Hynes
(C) Hensen
(D) None of them

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