



Provisional Answer Key

**Question with Answer of the conducted Computer Based Test (CBT)
Of the Senior Research Assistant (Fisheries) post**

English

1. Which of the following is not a benefit of genetically modified fish in aquaculture?

- (A) Enhanced growth rate
- (B) Disease resistance
- (C) Improved nutrition
- (D) Increased biodiversity

Correct Option(s): D

English

2. Fish detect food by

- (A) Sight
- (B) Lateral line system
- (C) Smell and taste
- (D) All of the given

Correct Option(s): D

English

3. Which fish is placed under Chondrichthyes?

- (A) Herring
- (B) Eel
- (C) Loaches
- (D) Shark

Correct Option(s): D

English

4. Pisciculture is rearing and production of

- (A) Fishes
- (B) Birds
- (C) Reptiles
- (D) Mammals

Correct Option(s): A

English

5. Which of the following is not a potential application of gene editing in fish biotechnology?

- (A) Modifying fish to tolerate high salinity environments
- (B) Creating fish that produce fewer greenhouse gas emissions
- (C) Enhancing the flavor of fish meat
- (D) Developing fish that can produce high levels of omega-3 fatty acids

Correct Option(s): C

English

6. Sacculina is a root headed barnacle parasitic on

- (A) Mole crab
- (B) Emerita
- (C) Prawn
- (D) Lobster

Correct Option(s): A

English

7. is used to improve hatching rate.

- (A) EDTA
- (B) Sodium thiosulphate
- (C) Sodium hypochlorite
- (D) lime

Correct Option(s): A

English

8. Which of the following is not a potential application of RNA interference in fish biotechnology?

- (A) Developing fish that produce fewer greenhouse gas emissions
- (B) Creating fish that can tolerate high salinity environments
- (C) Enhancing the nutritional content of fish meat
- (D) Increasing the growth rates of farmed fish

Correct Option(s): C

English

9. What is the name of the process used to identify specific DNA sequences in a complex mixture of DNA fragments?

- (A) Hybridization
- (B) Sequencing
- (C) PCR
- (D) Southern blotting

Correct Option(s): D

English

10. The abbreviation ELISA stands for

- (A) Enzyme linked Immunosorbent Assay
- (B) Enzyme Linked Immune Assay
- (C) Enzyme Legated Immune Assay
- (D) Enzyme Linked Immunological Assay

Correct Option(s): A

English

11. The traditional system of brackish water aquaculture in West Bengal is known as

- (A) Gheris
- (B) Kharlands
- (C) Pokkali fields
- (D) Bheris

Correct Option(s): D

English

12. Discus breeds in..... waters.

- (A) Soft and acidic
- (B) Soft and alkaline
- (C) Hard and acidic
- (D) Hard and alkaline

Correct Option(s): A

English

13. What is the name of the process used to determine the order of nucleotides in a DNA molecule?

- (A) Sequencing
- (B) Hybridization
- (C) PCR
- (D) Microarray analysis

Correct Option(s): A

English

14. What is the main advantage of using genetic markers in fish breeding programs?

- (A) Increased growth rate
- (B) Disease resistance
- (C) Increased survival rate
- (D) All of the given

Correct Option(s): D

English

15. Which of the following is not a type of fish biotechnology used in aquaculture?

- (A) Transgenic fish production
- (B) Gene editing
- (C) Cryopreservation
- (D) None of the given

Correct Option(s): D

English

16. *Labeo rohita* has :

- (A) Placoid scale
- (B) Ganoid scale
- (C) Cycloid scale
- (D) No scale

Correct Option(s): C

English

17. Polyculture of fishes were first developed in

- (A) India
- (B) China
- (C) Thailand
- (D) Taiwan

Correct Option(s): B

English

18. Denaturation of double stranded DNA involves

- (A) Breakage into short double stranded fragments
- (B) Separation into single strands
- (C) Hydrolysis of DNA backbone
- (D) Cleavage of the bases from the sugar phosphate backbone

Correct Option(s): B

English

19. Pepsinogen is secreted by

- (A) Stomach
- (B) Small Intestine
- (C) Buccal cavity
- (D) Liver

Correct Option(s): A

English

20. Which one of the following is not the component of nucleic acid?

- (A) Phosphate
- (B) Sugar
- (C) Nitrogenous base
- (D) Iron

Correct Option(s): D

English

21. Which of the following is a potential benefit of using CRISPR-Cas9 gene editing in fish biotechnology?

- (A) Creating new species of fish
- (B) Increasing the genetic diversity of farmed fish populations
- (C) Developing fish that can tolerate high temperatures
- (D) Enhancing the color of fish meat

Correct Option(s): C

English

22. What is the name of the process used to create transgenic fish by inserting foreign DNA into the genome of the fish?

- (A) Somatic cell nuclear transfer
- (B) Germline engineering
- (C) Gene editing
- (D) Microinjection

Correct Option(s): D

English

23. Induced breeding involves feeding of:

- (A) Heart
- (B) Muscles
- (C) Pituitary
- (D) Corpuscles of stannous

Correct Option(s): C

English

24. The first Indian Marine Park was set up at

- (A) Malvan
- (B) Sunderbans
- (C) Jamnagar
- (D) Tuticorin

Correct Option(s): C

English

25. Which of the following is a potential ethical concern associated with fish biotechnology?

- (A) Decreased availability of wild-caught fish
- (B) Increased risk of disease transmission to humans
- (C) Reduced genetic diversity in farmed fish populations
- (D) All of the given

Correct Option(s): C

English

26. is a leading country in export of ornamental fishes.

- (A) Russia
- (B) UK
- (C) Singapore
- (D) India

Correct Option(s): C

English

27. Index of preponderance is associated with

- (A) Gut content analysis
- (B) Reproductive analysis
- (C) Condition factor analysis
- (D) Percentage edibility analysis

Correct Option(s): A

English

28. Which of the following list of features correctly apply to the genetic code?

- (A) Triplet, degenerate, nearly universal, comma-less, non overlapping
- (B) Triplet, universal, comma-less, degenerate, non overlapping
- (C) Overlapping, triplet, comma-less, degenerate, nearly universal
- (D) Overlapping, comma-less, non degenerate, nearly universal, triplet

Correct Option(s): A

English

29. What is the name of the process used to identify genetic variation in a population of fish?

- (A) Genotyping
- (B) Sequencing
- (C) Microarray analysis
- (D) CRISPR-Cas9 editing

Correct Option(s): A

English

30. Natural antioxidant is

- (A) Alpha tocopherol
- (B) BHA
- (C) BHT
- (D) None of the given

Correct Option(s): A

English

31. The larvae of mud crab pass throughzoeal stages before metamorphosing into megalopa stage.

- (A) Four
- (B) Six
- (C) Seven
- (D) Five

Correct Option(s): D

English

32. is used for eradication of crabs.

- (A) Tea seed cake
- (B) MOC
- (C) Derris root
- (D) Tobacco dust

Correct Option(s): C

English

33. tag is mostly used for studying fish.

- (A) Atkin tag
- (B) Internal suture tag
- (C) Spaghetti tag
- (D) Dart tag

Correct Option(s): C

English

34. CaCO₃ is also known as

- (A) Agriculture lime
- (B) Quick lime
- (C) Dolomite
- (D) Bleaching powder

Correct Option(s): A

English

35. In von Bertalanffy Growth Formula 'K' stands for

- (A) Condition factor
- (B) Ponderal Index
- (C) Curvature parameter
- (D) Growth factor

Correct Option(s): C

English

36. Deficiency of gives rise to scoliosis and lordosis in fish.

- (A) Vitamin A
- (B) Vitamin B
- (C) Vitamin C
- (D) Vitamin D

Correct Option(s): C

English

37. The science of preserving cells, tissues etc in frozen state in liquid nitrogen is called as

- (A) Cryopreservation
- (B) Cryoprotectant
- (C) Cryoprotection
- (D) Cryobiology

Correct Option(s): D

English

38. Diatoms forming a long chain like structure are known as

- (A) Centricae
- (B) Pennatae
- (C) Bathypelagic
- (D) Thalassiosira

Correct Option(s): D

English

39. Which of the following is a potential disadvantage of using transgenic fish in aquaculture?

- (A) Increased resistance to disease
- (B) Reduced environmental impact
- (C) Potential risk of genetic contamination of wild fish populations
- (D) Enhanced nutritional value of fish meat

Correct Option(s): C

English

40. Which of the following is a potential benefit of using genome-wide association studies in fish biotechnology?

- (A) Identifying genetic markers associated with disease resistance in fish
- (B) Increasing the genetic diversity of farmed fish populations
- (C) Creating new species of fish
- (D) Enhancing the flavor of fish meat

Correct Option(s): A

English

41. What is the name of the process used to analyze gene expression in fish?

- (A) Genotyping
- (B) Proteomics
- (C) Transcriptomics
- (D) Metagenomics

Correct Option(s): C

English

42. The specific gravity of Chinese carp eggs is that of IMC.

- (A) More than
- (B) Equal to
- (C) Less than
- (D) None of the given

Correct Option(s): A

English

43. Cartilaginous fishes are

- (A) Placoderms
- (B) Acanthodians
- (C) Chondrichthyes
- (D) Osteichthyes

Correct Option(s): C

English

44. Which of the following is not a potential application of CRISPR-Cas9 in fish biotechnology?

- (A) Developing disease-resistant fish
- (B) Enhancing fish growth rate
- (C) Creating new fish species
- (D) Improving the flavor of fish meat

Correct Option(s): D

English

45. is one of the larval stages of lobster.

- (A) Mysis
- (B) Megalopa
- (C) Zoea
- (D) Phyllosoma

Correct Option(s): D

English

46. Which of the following biotechnological tools is used to identify genetic variations in fish populations?

- (A) DNA fingerprinting
- (B) RNA sequencing
- (C) Western blotting
- (D) ELISA

Correct Option(s): A

English

47. Who is the 'Father of Marine Fisheries Development'?

- (A) Sir M. Peterson
- (B) Sir F. Nicholson
- (C) Sir J. Bose
- (D) None of the given

Correct Option(s): B

English

48. *Tenualosa ilisha* is an example of a fish showing.

- (A) Catadromous migration
- (B) Anadromous migration
- (C) Not to migrate anywhere
- (D) None of the given

Correct Option(s): B

English

49. Catching and dealing in Whale shark invites prosecution under

- (A) Indian Fisheries Act 1897
- (B) Marine Fishing Regulation Act
- (C) Wildlife Protection Act
- (D) Maritime Act

Correct Option(s): C

English

50. Exclusively carnivorous gastropods are

- (A) Archaeogastropods
- (B) Mesogastropods
- (C) Neogastropods
- (D) All of the given

Correct Option(s): C

English

51. Length-weight relationship

- (A) Straight line
- (B) Curvilinear
- (C) Direct
- (D) No relationship

Correct Option(s): B

English

52. Which of the following is not a method used to introduce foreign DNA into fish cells?

- (A) Microinjection
- (B) Electroporation
- (C) Lipofection
- (D) Western blotting

Correct Option(s): D

English

53. Which of the following is a potential benefit of using biotechnology to develop new vaccines for fish?

- (A) Reduced environmental impact of fish farming
- (B) Enhanced growth rates of farmed fish
- (C) Improved disease resistance of farmed fish
- (D) Increased nutritional value of fish meat

Correct Option(s): C

English

54. Ammonia produced in the liver of the fish is converted into a non-toxic form in the blood called

- (A) Glutamine
- (B) Uric acid
- (C) Creatine
- (D) Creatinine

Correct Option(s): A

English

55. Sea ear has its first larval stage in the form of :

- (A) Veliger
- (B) Nauplius
- (C) Trochophore
- (D) Pluteus

Correct Option(s): C

English

56. Protozoal larval stages of *Penaeus monodon* feed on

- (A) Diatoms
- (B) Freshly hatched *Artemia nauplii*
- (C) Rotifers
- (D) None of the given

Correct Option(s): A

English

57. Which of the following is not a common method for producing transgenic fish?

- (A) Somatic cell nuclear transfer
- (B) Embryo microinjection
- (C) Homologous recombination
- (D) CRISPR-Cas9 gene editing

Correct Option(s): C

English

58. Two or more species culture in the same pond is known as

- (A) Polyculture
- (B) Monoculture
- (C) Raceway culture
- (D) Pen culture

Correct Option(s): A

English

59. $\text{Ca}(\text{Mg})\text{CO}_3$ is commonly known as

- (A) Agricultural lime stone
- (B) Burnt lime
- (C) Hydrated lime
- (D) Dolomite

Correct Option(s): D

English

60. What is the name of the process used to cut and paste DNA sequences from one location to another within the same genome?

- (A) Transposition
- (B) Transformation
- (C) Transcription
- (D) Translation

Correct Option(s): A

English

61. Gonopodia are

- (A) (A) Primary sex characters
- (B) (B) Secondary sex characters
- (C) Both (A) and (B)
- (D) None of the given

Correct Option(s): B

English

62. RNA produced by transcription of sense strand and complementary to mRNA is known as

- (A) Sense RNA
- (B) Nonsense RNA
- (C) Antisense RNA
- (D) Cosense RNA

Correct Option(s): C

English

63. Which of the following is a potential benefit of using gene editing in fish biotechnology?

- (A) Enhancing the flavor of fish meat
- (B) Developing fish that can tolerate low temperatures
- (C) Creating new species of fish
- (D) Increasing the genetic diversity of farmed fish populations

Correct Option(s): B

English

64. The process of introducing foreign DNA into the genome of an organism is called:

- (A) Transformation
- (B) Transcription
- (C) Translation
- (D) Replication

Correct Option(s): A

English

65. What is the main use of fish genetics in aquaculture?

- (A) Identifying disease resistant strains of fish
- (B) Enhancing the flavor of fish
- (C) Improving the texture of fish meat
- (D) None of the given

Correct Option(s): A

English

66. As per which article of Constitution of India fisheries is a state subject?

- (A) Article 370
- (B) Article 246
- (C) Article 297
- (D) Article 300

Correct Option(s): B

English

67. What is the name of the process used to introduce foreign DNA into fish cells using an electrical field?

- (A) Bioballistics
- (B) Electroporation
- (C) Microinjection
- (D) Lipofection

Correct Option(s): B

English

68. Which of the following is a potential disadvantage of using gene editing in fish biotechnology?

- (A) Reduced environmental impact of fish farming
- (B) Potential off-target effects
- (C) Reduced nutritional value of fish meat
- (D) Increased risk of genetic contamination of wild fish populations

Correct Option(s): B

English

69. Find the odd one out ---

- (A) Flexibacter columbaris - saddle back disease
- (B) Flavobacterium branchiophila – Gill disease
- (C) Aeromonas salmonicida- Furunculosis
- (D) Vibrio salmonicida- bacterial kidney disease

Correct Option(s): D

English

70. Which of the following is not a potential benefit of gene editing in fish biotechnology?

- (A) Faster and more efficient breeding
- (B) Improved resistance to environmental stressors
- (C) Enhanced nutritional content of fish meat
- (D) Increased risk of disease transmission to wild fish populations

Correct Option(s): D

English

71. zone is generally preferred for semi-intensive farming system.

- (A) Inter-tidal
- (B) Supra-tidal
- (C) Low lying areas
- (D) None of the given

Correct Option(s): B

English

72. Term used for Back crossing to one of the parental lines

- (A) Isogenic lines
- (B) Introgressive hybridization
- (C) Inter-racial hybridization
- (D) Intergressive hybridization

Correct Option(s): B

English

73. Which of the following is a potential benefit of using biotechnology to enhance the nutritional content of fish meat?

- (A) Reduced environmental impact of fish farming
- (B) Increased resistance to disease
- (C) Enhanced flavor and texture of fish meat
- (D) Improved health benefits for consumers

Correct Option(s): D

English

74. Total freshwater aquaculture production, India ranks at -

- (A) First
- (B) Second
- (C) Forth
- (D) Sixth

Correct Option(s): B

English

75. Which of the following is not a potential application of fish biotechnology in aquaculture?

- (A) Enhancing the disease resistance of farmed fish
- (B) Improving the growth rates of farmed fish
- (C) Developing new fish species for commercial purposes
- (D) Reducing the cost of fish production

Correct Option(s): C

English

76. The alveolar layer of Artemia cyst can be dissolved by the oxidation treatment with

- (A) Calcium
- (B) Sodium
- (C) Carbide
- (D) Hypochloride

Correct Option(s): D

English

77. Paddle wheel aerator is an example of _____ type of aerator.

- (A) Diffuser
- (B) Gravity
- (C) Surface
- (D) Turbine

Correct Option(s): C

English

78. IUCN is an abbreviated form of

- (A) Indian Union of Coral Nature
- (B) International Union for Conservation of Nature and Natural Resources
- (C) Integrated Union for Conservation of Nature
- (D) Indian Union for Conservation of Nature

Correct Option(s): B

English

79. A product of incubation period in days and average temperature during incubation is called as

- (A) Latency period
- (B) Equilibrium time
- (C) Degree days
- (D) None of the given

Correct Option(s): C

English

80. Floral components of mangrove ecosystem include

- (A) Epiphytes
- (B) Sea grass
- (C) Phytoplankton
- (D) All of the given

Correct Option(s): D

English

81. Scientific name of big eye tuna?

- (A) T. alalunga
- (B) T. albacores
- (C) T. obesus
- (D) T. tonggol

Correct Option(s): C

English

82. Biosynthetic precursor of Ketone bodies is

- (A) Acetyl CoA
- (B) Succinyl CoA
- (C) Adrenyl CoA
- (D) All of the given

Correct Option(s): A

English

83. Unio is

- (A) Edible oyster
- (B) Freshwater mussel
- (C) Freshwater snail
- (D) Sea mussel

Correct Option(s): B

English

84. Ox-bow lakes are formed by

- (A) Volcanic activity
- (B) River activity
- (C) Glacial activity
- (D) Tectonic activity

Correct Option(s): B

English

85. Which one of the following is cray fish?

- (A) Sillago shima
- (B) Ambassis cuvier
- (C) Procambarus clarkii
- (D) Ictalurus punctatus

Correct Option(s): C

English

86. Generally spawning in *Holothuria scabra* is induced by method

- (A) Thermal stimulation
- (B) Electric shock
- (C) Chemical
- (D) Mechanical

Correct Option(s): A

English

87. The Indian Fisheries Act was enacted in

- (A) 1897
- (B) 1887
- (C) 1890
- (D) None of the given

Correct Option(s): A

English

88. MEY refers to

- (A) Maximum Economic Yield
- (B) Maximum Effort Yield
- (C) Maximum Ecological Yield
- (D) Marine Ecological Yield

Correct Option(s): A

English

89. Name the compound present in microscopic glands of cotton seed which reduces protein digestibility

- (A) Geosmine
- (B) Gossypol
- (C) Glutamic acid
- (D) Glucogen

Correct Option(s): B

English

90. Which chemical is used to control aquatic insect?

- (A) Hi-oxide
- (B) Bleaching powder
- (C) Lime
- (D) Formalin

Correct Option(s): A

English

91. The caudal fin is in the Bombay duck.

- (A) Trilobed
- (B) Bilobed
- (C) Rounded
- (D) lunate

Correct Option(s): A

English

92. Eggs of goldfish are in nature.

- (A) Floating
- (B) Adhesive
- (C) Semi-adhesive
- (D) None of the given

Correct Option(s): B

English

93. The book Classic of Fish Culture was written by

- (A) H. B. Wilson
- (B) Fan Lei
- (C) T. V. R. Pillay
- (D) V. G. Zingran

Correct Option(s): B

English

94. What is the name of the process used to create a transgenic fish with a specific trait, such as disease resistance?

- (A) Knockout engineering
- (B) Gene targeting
- (C) Transposon-mediated gene transfer
- (D) Selective breeding

Correct Option(s): B

English

95. Placoid scales are present in

- (A) Salmon
- (B) Lamprey
- (C) Sharks
- (D) Common carp

Correct Option(s): C

English

96. Mark recovery method helps in

- (A) Species identification
- (B) Estimation of fecundity
- (C) Breeding season identification
- (D) Aging

Correct Option(s): D

English

97. Fishes having a mixed diet are termed as

- (A) Stenophagous
- (B) Monophagous
- (C) Euryphagous
- (D) Microphagus

Correct Option(s): C

English

98. Which of the following is not a common method for analyzing DNA sequences in fish?

- (A) Sanger sequencing
- (B) Next-generation sequencing
- (C) Restriction fragment length polymorphism (RFLP) analysis
- (D) Mass spectrometry

Correct Option(s): D

English

99. _____ can be used to reduce seepage losses from ponds.

- (A) Bentonite
- (B) Zeolite
- (C) Carbamide
- (D) Hypochlorite

Correct Option(s): A

English

100. fish has high water content of about 95%

- (A) Bombay duck
- (B) Jelly fish
- (C) White fish
- (D) Lizard fish

Correct Option(s): B

English

101. is an example of marine wood borers.

- (A) Pseudomonas
- (B) Vibrio
- (C) Bacillus
- (D) Limnoria

Correct Option(s): D

English

102. What is the name of the process used to identify specific DNA sequences using labeled probes?

- (A) Hybridization
- (B) PCR
- (C) Blotting
- (D) Sequencing

Correct Option(s): A

English

103. is the major haematopoietic organ in fish.

- (A) Bone marrow
- (B) Spleen
- (C) Head kidney
- (D) Thymus

Correct Option(s): C

English

104. Beels/ oxbow lakes are mostly distributed in

- (A) Tamilnadu
- (B) Gujarat
- (C) Himachal Pradesh
- (D) Assam

Correct Option(s): D

English

105. The basic philosophy of extension education is to teach people

- (A) What to think and what to do
- (B) How to think and how to do
- (C) How to think and not what to think
- (D) How to think and how to work

Correct Option(s): C

English

106. Instantaneous rate of fishing mortality is denoted by a symbol

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

Correct Option(s): A

English

107. Name the enzyme due to which the non sister chromatids of homologous pair twist over each other

- (A) Klenow enzyme
- (B) polymerase enzyme
- (C) endonuclease
- (D) ligase

Correct Option(s): C

English

108. What is the name of the process used to transfer genes from one organism to another using a vector?

- (A) Gene cloning
- (B) Gene mapping
- (C) Gene expression
- (D) Gene regulation

Correct Option(s): A

English

109. Measurement of carbonate and bicarbonate ions is a

- (A) Hardness
- (B) Alkalinity
- (C) Transparency
- (D) Turbidity

Correct Option(s): B

English

110. Rat fish is the common name of:

- (A) Salmons
- (B) Sharks
- (C) Chimeras
- (D) Coelacanth

Correct Option(s): C

English

111. What is the name of the process used to selectively amplify a specific region of DNA?

- (A) PCR
- (B) Blotting
- (C) Sequencing
- (D) Hybridization

Correct Option(s): A

English

112. Highly motile DNA elements that moves from one position of genome to another are known as

- (A) Transposons
- (B) Transposases
- (C) Translocation
- (D) Transgenesis

Correct Option(s): A

English

113. Which of the following is not a potential benefit of fish biotechnology in aquaculture?

- (A) Reduced environmental impact of fish farming
- (B) Increased fish production for human consumption
- (C) Improved human health through the consumption of nutritious fish
- (D) Increased genetic diversity in farmed fish populations

Correct Option(s): D

English

114. The complex of protein with carbohydrate is known as

- (A) Lipoprotein
- (B) Glycoprotein
- (C) Metalloprotein
- (D) None of the given

Correct Option(s): B

English

115. Which of the following is not a common method for analyzing gene expression in fish?

- (A) RNA sequencing
- (B) Microarray analysis
- (C) Polymerase chain reaction (PCR)
- (D) Electrophoresis

Correct Option(s): D

English

116. The method of rearing Daphnia in a culture medium made up of soil, manure and water is known as

- (A) Autotrophic
- (B) Detrital
- (C) Xenic
- (D) Axenic

Correct Option(s): B

English

117. Which of the following is not a common technique used in fish genetic engineering?

- (A) RNA interference
- (B) CRISPR-Cas9 gene editing
- (C) Transposon-mediated gene transfer
- (D) Microarray analysis

Correct Option(s): D

English

118. Which of the following is not a common application of gene editing in fish biotechnology?

- (A) Creating fish that can tolerate low oxygen levels
- (B) Developing fish that can tolerate high temperatures
- (C) Enhancing the disease resistance of farmed fish
- (D) Increasing the size of farmed fish

Correct Option(s): D

English

119. are responsible for the sense of touch, hearing and position.

- (A) Electroreceptors
- (B) Acoustics
- (C) Mechanoreceptors
- (D) Radioreceptor

Correct Option(s): C

English

120. Bag nets are provided with line to avoid overloading of shrimps.

- (A) Lazy
- (B) Lure
- (C) Scare
- (D) Loope

Correct Option(s): A

English

121. are generally used for production of cultchless spats.

- (A) Polythene sheets
- (B) Coconut shells
- (C) Oyster shells
- (D) Roofing tiles

Correct Option(s): A

English

122. The ovary of ripe green mussel female is colour

- (A) Orange
- (B) Brown
- (C) Green
- (D) Yellow

Correct Option(s): D

English

123. The concept of Krishi Vigyan Kendra was introduced by

- (A) Mohan Singh Mehta
- (B) Dr. Balwant Rai Mehta
- (C) Hemant Mehta
- (D) Prashant Mehta

Correct Option(s): A

English

124. Adults of *Lates calcarifer* migrate towards _____ for spawning.

- (A) River
- (B) Estuary
- (C) Sea
- (D) Origin of river

Correct Option(s): C

English

125. The poisoning of reservoir during war is reported in -

- (A) Kautilyas arthashastra
- (B) Someshvaras Manasoltara
- (C) Freshwater aquaculture
- (D) Aquaculture in pond

Correct Option(s): A

English

126. Type of ploidy occurs when 1 or more chromosomes are gained or lost due to improper cell division.

- (A) Autopolyploidy
- (B) Allopolyploidy
- (C) Aneuploidy
- (D) Euploidy

Correct Option(s): C

English

127. Which one of the following statements about PCR is false

- (A) The PCR cycle involves Denaturation of the template, annealing of the primers and polymerization of nucleotides
- (B) PCR uses thermo stable polymerases
- (C) Ideally, PCR primers should be of similar length and G + C content PCR optimization usually includes varying the magnesium concentration and the polymerization temperature
- (D) If PCR was 100% efficient, one target molecule would amplify to 2^n after n cycles

Correct Option(s): D

English

128. _____ can be constructed in dike near the water edge to stop acid runoff during rains

- (A) Berm
- (B) Core
- (C) Mound
- (D) Crown

Correct Option(s): A

English

129. The Institute responsible to carry out research and developmental work in Inland fisheries sector in India is.

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

Correct Option(s): D

English

130. Which of the following is not a potential benefit of using biotechnology to improve the nutritional content of fish meat?

- (A) Increased protein content
- (B) Increased omega-3 fatty acid content
- (C) Reduced mercury content
- (D) Increased growth rates of farmed fish

Correct Option(s): D

English

131. What is the name of the first transgenic fish approved for human consumption?

- (A) GloFish
- (B) Salmon Express
- (C) AquaAdvantage Salmon
- (D) Trout Titan

Correct Option(s): C

English

132. The entire RNA content of an organism is known as

- (A) Genome
- (B) C Value
- (C) RNA satellites
- (D) Transcriptome

Correct Option(s): D

English

133. Elasmobranchs possess low-density oil named

- (A) Squalene
- (B) Prolactin
- (C) Ambergris
- (D) Triglycerides

Correct Option(s): A

English

134. Scientific name of Kuruma shrimp is

- (A) *Penaeus semisulcatus*
- (B) *Penaeus indicus*
- (C) *Fennoropenaeus (Penaeus) merguensis*
- (D) *Marsupenaeus japonicus*

Correct Option(s): D

English

135. In fishes, phenylalanine is spared by

- (A) Methionine
- (B) Tyrosine
- (C) Lysin
- (D) None of the given

Correct Option(s): B

English

136. In general, *Artemia* grows from nauplius to adult stages in _____ days

- (A) 5
- (B) 6
- (C) 7
- (D) 8

Correct Option(s): D

English

137. The important pelagic finfish group of Indian coast is

- (A) (A) Oil sardine, Lesser sardine, Mackerel
- (B) (B) Anchovies, Ribbon fishes, Carangids
- (C) Both (A) and (B)
- (D) None of the given

Correct Option(s): A

English

138. Which of the following is a potential benefit of using biotechnology to reduce the environmental impact of fish farming?

- (A) Increased resistance to disease
- (B) Improved growth rates of farmed fish
- (C) Reduced reliance on antibiotics and other medications
- (D) Enhanced flavor and texture of fish meat

Correct Option(s): C

English

139. An individual having 4 copies of single genome is known as

- (A) Autotetraploid
- (B) Aneuploid
- (C) Autotriploidy
- (D) Ploidy

Correct Option(s): A

English

140. Type of inversion which involves only one arm of chromosome without involvement of centromere

- (A) Paracentric
- (B) Pericentric
- (C) Acentric
- (D) Dicentric

Correct Option(s): A

English

141. Which animal among the following has head foot?

- (A) Garden Snail
- (B) Freshwater mussel
- (C) Seamussel
- (D) Cuttle fish

Correct Option(s): D

English

142. What is the name of the process used to analyze genetic variation within and between fish populations?

- (A) Genotyping
- (B) Gene expression analysis
- (C) Proteomics
- (D) Metagenomics

Correct Option(s): A

English

143. Which of the following is not a use of fish genetics in aquaculture?

- (A) Selecting broodstock for breeding programs
- (B) Developing new fish vaccines
- (C) Improving fish welfare
- (D) Enhancing the color of fish meat

Correct Option(s): D

English

144. What is the name of the process used to determine the presence or absence of specific DNA sequences in a sample?

- (A) Sequencing
- (B) Hybridization
- (C) PCR
- (D) Microarray analysis

Correct Option(s): B

English

145. is the world's largest living arthropod.

- (A) American crayfish
- (B) Mantis shrimp
- (C) Japanese spider crab
- (D) Krill

Correct Option(s): B

English

146. In male live bearing fishes, anterior rays of ----- fin are modified in to gonopodium.

- (A) Dorsal
- (B) Pectoral
- (C) Pelvic
- (D) Anal

Correct Option(s): D

English

147. Fishes feeding on single type of feed are known as

- (A) Stenophagic
- (B) Monophagic
- (C) Euryphagic
- (D) Carnivorous

Correct Option(s): B

English

148. What is the term used to describe the complete set of genes in an organism?

- (A) Genome
- (B) Proteome
- (C) Transcriptome
- (D) Metabolome

Correct Option(s): A

English

149. Which of the following is not a common method for analyzing the genetic diversity of fish populations?

- (A) Microsatellite analysis
- (B) Single nucleotide polymorphism (SNP) analysis
- (C) Mitochondrial DNA sequencing
- (D) Western blot analysis

Correct Option(s): D

English

150. Which is the anadromous fish?

- (A) Hilsa
- (B) Catfish
- (C) Magur
- (D) Pangassius

Correct Option(s): A

English

151. Which of the following is not a potential application of biotechnology in fish conservation?

- (A) Studying the genetic diversity of wild fish populations
- (B) Developing methods for restoring endangered fish populations
- (C) Creating genetically modified fish for commercial purposes
- (D) Developing techniques for conserving and preserving fish germplasm

Correct Option(s): C

English

152. What is the name of the process used to insert foreign DNA into fish cells using a particle gun?

- (A) Bioballistics
- (B) Electroporation
- (C) Microinjection
- (D) Lipofection

Correct Option(s): A

English

153. larva of *Holothuria scabra* is sleeper shaped.

- (A) Doliolaria
- (B) Pentacula
- (C) Auricularia
- (D) None of the given

Correct Option(s): C

English

154. Which of the following is not a factor that affects the success of fish breeding programs?

- (A) Genetic variability
- (B) Broodstock selection
- (C) Environmental conditions
- (D) Fish feed composition

Correct Option(s): D

English

155. What is the name of the technique used to amplify DNA sequences in the laboratory?

- (A) PCR
- (B) Gel electrophoresis
- (C) Blotting
- (D) Hybridization

Correct Option(s): A

English

156. The type of mutation in which purine is substituted by pyrimidine or vice versa

- (A) Transversion
- (B) Translocation
- (C) Duplication
- (D) Deletion

Correct Option(s): A

English

157. Asexual progeny of a single cell or individual is known as

- (A) Blastula
- (B) Clone
- (C) Zygote
- (D) Ova

Correct Option(s): B

English

158. Interferons are cellular proteins produced mainly in response to

- (A) Virus infection
- (B) Bacterial infection
- (C) Fungus infection
- (D) Parasitic infection

Correct Option(s): A

English

159. Which of the following is not a potential application of bioballistics in fish biotechnology?

- (A) Introducing foreign DNA into fish cells
- (B) Creating transgenic fish
- (C) Developing fish that can tolerate low oxygen environments
- (D) Modifying the genetic makeup of wild fish populations

Correct Option(s): D

English

160. What is the name of the process used to study the structure and function of genes in fish?

- (A) Genomics
- (B) Transcriptomics
- (C) Proteomics
- (D) Metabolomics

Correct Option(s): A

English

161. Scientific name of lizard fish is

- (A) Harpodon nehereus
- (B) Saurida tumbil
- (C) Atropus atropus
- (D) Silago sihama

Correct Option(s): B

English

162. The frustules of diatoms are made up of

- (A) Calcium
- (B) Carbonate
- (C) Phosphate
- (D) Silica

Correct Option(s): B

English

163. Which of the following considers the stock as a homogenous biomass?

- (A) Logistics models
- (B) Analytical models
- (C) Exploratory surveys
- (D) Holistic models

Correct Option(s): D

English

164. The first fishes from upper Cambrian (490 million years BC) period are known as

- (A) Placoderms
- (B) Ostracoderms
- (C) Acanthodians
- (D) Colacanth

Correct Option(s): B

English

165. Which of the following is not a potential limitation of CRISPR-Cas9 in fish biotechnology?

- (A) Off-target effects
- (B) Limited availability of Cas9 protein
- (C) High cost of technology
- (D) Difficulty in delivering the CRISPR-Cas9 system to fish cells

Correct Option(s): B

English

166. Which of the following is not a type of genetic variation in fish populations?

- (A) Insertions and deletions
- (B) Nucleotide substitutions
- (C) Gene duplication
- (D) Protein folding

Correct Option(s): D

English

167. Major nitrogenous waste products excreted by fish

- (A) Urea
- (B) Ammonia
- (C) Uric acid
- (D) Amino acid

Correct Option(s): B

English

168. Guts of mullet fish carry a characteristic feature known as

- (A) Spiral valve
- (B) Gastric mill
- (C) Gizzard
- (D) Pyloric caecae

Correct Option(s): C

English

169. What is the name of the technique used to measure gene expression levels in fish?

- (A) RNA sequencing
- (B) Microarray analysis
- (C) DNA fingerprinting
- (D) Southern blotting

Correct Option(s): B

English

170. is known as freshwater shark

- (A) *Clarius batrachus*
- (B) *Channa straitus*
- (C) *Wallago*
- (D) *Clarius garripineus*

Correct Option(s): C

English

171. Coelacanth belongs to class

- (A) Elasmobranch
- (B) Holocephali
- (C) Sarcopterygii
- (D) Actinopterygii

Correct Option(s): C

English

172. A DNA sequence which is involved in the initiation of transcription and translation of a gene is known as

- (A) Proteome
- (B) Plasmids
- (C) Promoters
- (D) Primers

Correct Option(s): C

English

173. Name the type of mutation that abolishes expression of a gene

- (A) Null Mutation
- (B) Dominant mutation
- (C) Recessive mutation
- (D) Co-dominant mutation

Correct Option(s): A

English

174. What is the name of the protein responsible for cutting DNA during the CRISPR-Cas9 system?

- (A) Cas9
- (B) CRISPR
- (C) RNA polymerase
- (D) Ligase

Correct Option(s): A

English

175. What is the name of the process used to remove undesirable genes from a population using selective breeding?

- (A) Genetic engineering
- (B) Gene editing
- (C) Genetic drift
- (D) Negative selection

Correct Option(s): D

English

176. Pistia is a type of weed

- (A) Floating
- (B) Submerged
- (C) Marginal
- (D) Algal weed

Correct Option(s): A

English

177. What is the name of the process used to introduce new genetic material into the germline of fish?

- (A) Somatic cell nuclear transfer
- (B) In vitro fertilization
- (C) Gene therapy
- (D) Germline engineering

Correct Option(s): D

English

178. What is the name of the enzyme used to cut DNA at specific sites?

- (A) Restriction enzyme
- (B) Polymerase enzyme
- (C) Ligase enzyme
- (D) Helicase enzyme

Correct Option(s): A

English

179. Mark and recapture is method of population enumeration.

- (A) a direct
- (B) an indirect
- (C) a back calculation
- (D) None of the given

Correct Option(s): B

English

180. What is the name of the process used to create a complementary DNA copy from RNA?

- (A) Reverse transcription
- (B) Forward transcription
- (C) PCR
- (D) Blotting

Correct Option(s): A

English

181. Which of the following is not a potential application of genetic engineering in fish biotechnology?

- (A) Developing fish that can tolerate low oxygen environments
- (B) Creating fish that produce biodegradable plastics
- (C) Enhancing the flavor of fish meat
- (D) Developing fish that can produce high levels of pharmaceuticals

Correct Option(s): C

English

182. The following state has the highest marine fish production in India.

- (A) Maharashtra
- (B) Gujarat
- (C) Kerala
- (D) Tamilnadu

Correct Option(s): B

English

183. Hydrodynamics is studied under the division.....

- (A) Marine Engineering
- (B) Chemical oceanography
- (C) Biological oceanography
- (D) Physical oceanography

Correct Option(s): D

English

184. Identify the enzyme which synthesizes DNA from RNA template

- (A) Restriction Enzyme
- (B) Reverse Transcriptase
- (C) DNA ligase
- (D) Restriction Endonuclease

Correct Option(s): B

English

185. Which is the active ingredient content in Derris Root Powder?

- (A) (A) Saponin
- (B) (B) Rotenone
- (C) Both (A) and (B)
- (D) None of the given

Correct Option(s): B

English

186. Ocean is a property

- (A) Government
- (B) Common
- (C) International
- (D) Central government

Correct Option(s): B

English

187. Which of the following is not a type of DNA marker used in fish genetics research?

- (A) Microsatellites
- (B) SNPs
- (C) RAPDs
- (D) GLPs

Correct Option(s): D

English

188. Inland fisheries are

- (A) Deep sea fishing
- (B) Capturing fishes from sea coast
- (C) Raising and capturing fishes in fresh water
- (D) Oil extraction from fish

Correct Option(s): C

English

189. Unrelated DNA added to the solution of DNA used for transformation is known as

- (A) Antisense DNA
- (B) Nonsense DNA
- (C) Carrier DNA
- (D) Anticarrier DNA

Correct Option(s): C

English

190. can be applied for absorption of ammonia from pond bottom sediments.

- (A) Gypsum
- (B) Sevin
- (C) Zeolite
- (D) Lime

Correct Option(s): C

English

191. Wintering pond is used for

- (A) To protect fish stock from cold
- (B) For quarantine
- (C) For raising brooders
- (D) For growing spawn

Correct Option(s): A

English

192. Which of the following is not a potential application of transgenic fish production?

- (A) Creating fish that are resistant to diseases
- (B) Producing fish with increased growth rates
- (C) Developing new species of fish
- (D) Enhancing the nutritional content of fish meat

Correct Option(s): C

English

193. Which of the following is not a common application of fish biotechnology?

- (A) Developing new fish species
- (B) Enhancing the growth rates of farmed fish
- (C) Improving the nutritional content of fish meat
- (D) Reducing the environmental impact of fish farming

Correct Option(s): A

English

194. In India, shrimp farming is regulated and controlled by

- (A) MPEDA
- (B) BFDA
- (C) NABARD
- (D) Aquaculture Authority

Correct Option(s): D

English

195. Which of the following is a potential environmental risk associated with genetically modified fish?

- (A) Reduced genetic diversity in wild fish populations
- (B) Increased susceptibility to disease in wild fish populations
- (C) Higher levels of mercury in fish meat
- (D) None of the given

Correct Option(s): A

English

196. The Japanese system of penaeid shrimp hatchery is also known as system.

- (A) Unfertilized
- (B) Community
- (C) Feeding
- (D) Small larval rearing tank

Correct Option(s): B

English

197. Chloride cells are present in:

- (A) Gills
- (B) Kidney
- (C) Skin
- (D) Urinary bladder

Correct Option(s): A

English

198. Nursery ponds are used for growing

- (A) Spawn to fry
- (B) Brooders
- (C) Fry to fingerlings
- (D) Marketable fishes

Correct Option(s): A

English

199. Which of the following is a common method for producing transgenic fish?

- (A) Injection of DNA into fish eggs
- (B) Injection of RNA into fish eggs
- (C) Direct gene transfer into fish cells
- (D) All of the given

Correct Option(s): D

English

200. What is the name of the process used to separate DNA fragments by size using an electric field?

- (A) Gel electrophoresis
- (B) Southern blotting
- (C) Northern blotting
- (D) Western blotting

Correct Option(s): A