

Sl. No. : 20000065

SIFS/16

Register
Number

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2016

Paper I

FISHERIES SCIENCE

(Degree Standard)

Time Allowed : 3 Hours]

[Maximum Marks : 300

Read the following instructions carefully before you begin to answer the questions.

IMPORTANT INSTRUCTIONS

1. This Booklet has a cover (this page) which should not be opened till the invigilator gives signal to open it at the commencement of the examination. As soon as the signal is received you should tear the right side of the booklet cover carefully to open the booklet. Then proceed to answer the questions.
2. This Question Booklet contains 200 questions. Prior to attempting to answer the candidates are requested to check whether all the questions are there in series without any omission and ensure there are no blank pages in the question booklet. In case any defect in the Question Paper is noticed it shall be reported to the Invigilator within first 10 minutes.
3. Answer all questions. All questions carry equal marks.
4. You must write your Register Number in the space provided on the top right side of this page. Do not write anything else on the Question Booklet.
5. An Answer Sheet will be supplied to you separately by the Invigilator to mark the answers.
6. You will also encode your Register Number, Subject Code, Question Booklet Sl. No. etc. with Blue or Black ink Ball point pen in the space provided on the side 2 of the Answer Sheet. If you do not encode properly or fail to encode the above information, action will be taken as per commission's notification.
7. Each question comprises *four* responses (A), (B), (C) and (D). You are to select **ONLY ONE** correct response and mark in your Answer Sheet. In case you feel that there are more than one correct response, mark the response which you consider the best. In any case, choose **ONLY ONE** response for each question. Your total marks will depend on the number of correct responses marked by you in the Answer Sheet.
8. In the Answer Sheet there are **four** circles (A), (B), (C) and (D) against each question. To answer the questions you are to mark with Blue or Black ink Ball point pen **ONLY ONE** circle of your choice for each question. Select one response for each question in the Question Booklet and mark in the Answer Sheet. If you mark more than one answer for one question, the answer will be treated as wrong. e.g. If for any item, (B) is the correct answer, you have to mark as follows :
(A) ● (C) (D)
9. You should not remove or tear off any sheet from this Question Booklet. You are not allowed to take this Question Booklet and the Answer Sheet out of the Examination Hall during the examination. After the examination is concluded, you must hand over your Answer Sheet to the Invigilator. You are allowed to take the Question Booklet with you only after the Examination is over.
10. The sheet before the last page of the Question Booklet can be used for Rough Work.
11. Failure to comply with any of the above instructions will render you liable to such action or penalty as the Commission may decide at their discretion.
12. Do not tick-mark or mark the answers in the Question booklet.

SPACE FOR ROUGH WORK

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1. The black clam is scientifically written as
- (A) Perna Viridis
 - (B) Pinctada fucata
 - ~~(C)~~ Villorita cyprinoides
 - (D) Crossostrea madrasensis
2. The family that have spines on their skins are called as
- (A) Molidae
 - ~~(B)~~ Diodontidae
 - (C) Cynoglossidae
 - (D) Triacanthidae
3. The carapace with longitudinal carinae is present in
- (A) Metapenaeus
 - (B) Penaeus
 - (C) Acetes
 - ~~(D)~~ Hetero carpus
4. The shortest guts in fishes are observed in
- (A) Herbivorous species
 - ~~(B)~~ Carnivorous species
 - (C) Omnivorous species
 - (D) Detritivores
5. The production process of glucose from lipids and aminoacids is called
- (A) Metabolism
 - (B) Glycolysis
 - ~~(C)~~ Glyconeogenesis
 - (D) Deamination

6. The condition in which both parts of the ovo-testis mature at the same time in fishes is called
- (A) Synchronous hermaphroditism
 - ~~(B)~~ Successive hermaphroditism
 - (C) Protandry
 - (D) Protogyny
7. The osmolarity of the clasmobranch plasma is increased due to the presence of
- ~~(A)~~ Trimethylamine oxide
 - (B) Chloride ions
 - (C) Magnesium ions
 - (D) Sodium ions
8. (a) Magur is an obligatory air breathing fish while Singhi is a facultative air breathing fish.
- (b) Magur cannot live in oxygen deficit water.
- (A) (a) is wrong and (b) is right
 - ~~(B)~~ (a) is right and (b) is wrong
 - (C) Both are wrong
 - (D) Both are correct
9. The presence of the pigment 'Melanin' in fish aids
- ~~(A)~~ Light and Dark Adaptation
 - (B) Swimming
 - (C) Light reception
 - (D) Focussing
10. Many of the world's greatest fisheries particularly pelagic fishes like sardines have collapsed due to
- (A) Illegal fishing
 - (B) Growth over fishing
 - ~~(C)~~ Recruitment over fishing
 - (D) Economic over fishing

11. Phi-prime in fish population dynamics refers to
- (A) mortality rate of the fish
 (B) survival rate of the fish
 (C) growth rate of the fish
~~(D)~~ overall well being of the fish
12. The parameter that decides the slope of the growth curve of a fish is
- ~~(A)~~ K (B) L_{∞}
 (C) M (D) F
13. The longevity of a fish is related to the Instantaneous Natural Mortality Coefficient by Paul'y as follows
- (A) $t_{\max} \Omega \frac{4}{K}$ (B) $t_{\max} \Omega \frac{5}{K}$
 (C) $t_{\max} \Omega \frac{2}{K}$ ~~(D)~~ $t_{\max} \Omega \frac{3}{K}$
14. The term L_{25} refers to the length at which the percentage of animals vulnerable to a fishing gear is
- ~~(A)~~ 25% (B) 75%
 (C) 20% (D) 10%
15. Among the following which pond is connected with sewage fish culture?
- (A) Nursery pond ~~(B)~~ Oxidation pond
 (C) Brooder pond (D) Quarantine pond
16. Sewage fed fisheries is more prevalent in the state of
- (A) Kerala (B) Tamil Nadu
~~(C)~~ West Bengal (D) Andhra Pradesh

17. The disease caused in fishes due to supersaturation of nitrogen or oxygen in water is
- (A) Alkalosis
 - (B) Acidosis
 - ~~(C)~~ Gas bubble disease
 - (D) Scoliosis
18. Which of the following weed can be used to remove toxic heavy metals in sewage cum fish culture?
- ~~(A)~~ Eichhoruia
 - (B) Lemna
 - (C) Ceratophyllum
 - (D) Typha
19. Ex-situ storage of fish sperms, eggs and embryos without loss of viability in ultra low temperatures is done using
- (A) liquid oxygen
 - (B) liquid helium
 - ~~(C)~~ liquid nitrogen
 - (D) liquid carbondioxide
20. Which hormone is generally used to achieve feminization?
- ~~(A)~~ Estradiol 17 β
 - (B) HCG
 - (C) 17 α MT
 - (D) Ovaprim
21. The dose requirement of 17 α /MT for male production is
- (A) 15 mg/kg diet
 - (B) 10 mg/kg diet
 - ~~(C)~~ 5 mg/kg diet
 - (D) 20 mg/kg diet
22. Natural polyploidy has been observed in the following fish
- (A) Big head carp
 - (B) Silver carp
 - (C) Grass carp
 - ~~(D)~~ Common carp

23. Colisa lalia is commonly called as
- (A) Kissing gourami (B) Three spot gourami
(C) Mosaic gourami ~~(D) Dwarf gourami~~
24. Red tailed black shark is scientifically called as
- ~~(A) Labeo bicolor~~ (B) Labeo bata
(C) Labeo rohita (D) Labeo calbasu
25. In the biological filter, nitrite is converted into
- ~~(A) Nitrate~~ (B) Ammonia
(C) Ammonium (D) Nitrogen
26. The fish which shows parental care is
- (A) Guppy ~~(B) Fighter fish~~
(C) Sword tail (D) Tiger barb
27. The following ingredient added to enhance the coloration of the fish is
- ~~(A) carotenoids~~ (B) legumes
(C) sugars (D) gelatin
28. The ornamental fish with the modified male reproductive organ is
- (A) Gold fish (B) Koi carp
~~(C) Guppy~~ (D) Arowana
29. The mode of reproduction exhibited by molly fish, a popular ornamental fish is
- (A) Viviparity ~~(B) Ovoviviparity~~
(C) Oviparity (D) Protandrous

30. The example for the free-floating aquatic macro plant with roots but not anchored to the bottom
- (A) ~~✓~~ Eichhornia crassipes (B) Vallisneria sp.
(C) Hydrilla sp. (D) Marsilea sp.
31. The freezing point of sea water with a salinity of 35% is
- (A) ~~✓~~ - 1.91°C (B) 0°C
(C) 4°C (D) -5° C
32. Which of the following marine pelagic division is the dim-light zone?
- (A) Epipelagic zone (B) ~~✓~~ Mesopelagic zone
(C) Bathypelagic zone (D) Abyssopelagic zone
33. Among the different intertidal regions, which of the following has prominent zonation pattern by the organisms?
- (A) Sandy intertidal beach
(B) Muddy shore
(C) ~~✓~~ Rocky shore
(D) Sandy-Clayey intertidal shore
34. Estuaries in arid-regions where the rate of evaporation exceeds the inflow of fresh water are also termed as
- (A) positive estuaries
(B) ~~✓~~ negative estuaries
(C) normal estuaries
(D) fjords
35. Which of the following are the single celled zooplankton organisms?
- (A) Copepods (B) Chaetognaths
(C) ~~✓~~ Foraminifers (D) Bivalve valigers

36. Plants and bacteria that synthesize their food from inorganic nutrients are termed as
- ~~(A)~~ autotrophs (B) heterotrophs
(C) saprotrophs (D) myxotrophs
37. _____ and the euphausiids are the chief consumers of phytoplankton.
- ~~(A)~~ Copepods (B) Chaetognaths
(C) Corals (D) All benthic animals
38. Manatees and _____ (order sirenia) are the only marine mammals that are herbivores.
- ~~(A)~~ dugongs (B) dolphins
(C) baleen whales (D) sperm whales
39. Which one of the following commonly occurring blue-green algal species form bloom and cause mass mortality of fishes in Indian waters?
- ~~(A)~~ Trichodesmium erythraeum
(B) Aphanizomenon sp
(C) Lyngbya sp
(D) Spirulina subsalsa
40. The enzyme involved in the production of light marine living organisms is
- (A) amylase (B) lipase
(C) alkaline phosphatase ~~(D)~~ luciferase
41. When value of goods is expressed in terms of money, then it is called as
- (A) wealth (B) income
~~(C)~~ price (D) utility

42. A letter written by an extension worker to the farmers in connection with extension work is called as
- (A) news letter (B) circular letter
~~(C)~~ personal letter (D) contact letter
43. An electronic audio-visual medium, which provides pictures with synchronized sound, is called as
- (A) Radio ~~(B)~~ Television
(C) Flash cards (D) OHP
44. NABARD came into existence during the year
- (A) 1972 (B) 1983
~~(C)~~ 1982 (D) 1984
45. Floating feeds used in fish culture are
- (A) particulate pellets ~~(B)~~ extruded pellets
(C) vacuum dried pellets (D) encapsulated pellets
46. Protein level adequate for most species of cultured shrimp is in the range of
- (A) 20% - 30% ~~(B)~~ 35% - 40%
(C) 10% - 15% (D) 60% - 70%
47. The widely used microalgae that serve as food for rotifers used as live feed for shrimp larvae is
- ~~(A)~~ Chlorella (B) Nannochloropsis
(C) Scenedesmus (D) Tetraselmis

48. The specific gravity of steel used in fishing vessel is
~~(A)~~ 7.84 (B) 6.00
 (C) 5.35 (D) 4.86
49. A special type of raft Catamaram made up of 7 logs tied together for capturing flying fishes is called
~~(A)~~ Kola-maram (B) Chinna-maram
 (C) Periya-maram (D) Irruku-maram
50. The metal used as sacrificing anode in steel fishing boat to reduce corrosion is
 (A) copper (B) aluminium
~~(C)~~ zinc (D) graphite
51. In Malia boats, the bottom is
 (A) Steep (B) V shaped
 (C) U shaped ~~(D)~~ Flat
52. In plan view of a boat the waterlines which appear as straight lines in the profile and sectional view will be
~~(A)~~ curved lines
 (B) straight lines
 (C) undulated lines
 (D) with almost straight lines
53. The mass to be added or to be deducted from a vessel to change the mean draft by 1 cm is called
 (A) GT ~~(B)~~ Tons per centimeter
 (C) GRT (D) NRT

54. Halar Machhawa is one of the traditional boats of
(A) Maharastra (B) Karnataka
(C) Kerala ~~(D) Gujarat~~
55. The line that helps to attach the purse rings to the foot rope of purse seine is
(A) purse line (B) float line
(C) lead line ~~(D) bridle line~~
56. Besides making floats, PVC can be used for making
(A) Gill net twine (B) Trawl twine
(C) Fish traps ~~(D) Seine net twine~~
57. During trawl net mounting the webbing is mounted to the head and foot rope through
(A)- Reeving (B) Marling
(C) Stapling ~~(D) Bolch line~~
58. Total buoyancy of the float is equal to weight of the float plus its
(A) sinking force ~~(B) extra buoyancy~~
(C) specific gravity (D) density
59. Paralysis of fish due to high intensity of current is termed as
(A) Electrolysis ~~(B) Electro-narcosis~~
(C) Electrocution (D) Positive phototaxis
60. Traps whose entrance gets closed by the trigger of the fish that has entered the trap is called
(A) Basket trap (B) Rap trap
(C) Box trap ~~(D) Mechanical trap~~

61. The line used between the wings of the trawl and otter boards is called
- (A) Lead line (B) Bolch line
~~(C) Sweep line~~ (D) Towing warp
62. The part of the trawl net which prevents the escape of fish from cod end through the mouth is called
- ~~(A) Flapper~~ (B) Throat
(C) Bosum (D) Quarter
63. The chemical powder used in dry powder fire extinguishers is
- (A) Sodium and potassium mixture
(B) Sodium powder
~~(C) Sodium bicarbonate~~
(D) Sodium nitrate
64. The technique of transferring curved surface into plain surface is called as
- (A) Chart reading (B) Chart printing
(C) Piloting ~~(D) Projection~~
65. The lubber line of magnetic compass is fixed on board a vessel to show
- ~~(A) Ship's head~~
(B) Ship's starboard side
(C) Ship's port side
(D) Ship's stern side
66. An optical instrument used for measuring the vertical and horizontal angles at sea is known as
- (A) Pelorus (B) Azimuth mirror
(C) Compass ~~(D) Sextant~~

67. A publication used to inform about the corrections of nautical chart to the chart users is called as
- (A) Nautical Almanac (B) Chart corrections
(C) Tide table (D) ~~Notion to Mariners~~
68. An electronic device working on satellite signals, gives the latitude and longitude of any position on earth is called as
- (A) RADAR (B) SONAR
(C) SART (D) ~~GPS~~
69. According to the TamilNadu Marine Fisheries Regulation Act (1983) the mechanized fishing vessel should operate beyond _____ distance from shore line.
- (A) ~~5.5 Km~~ (B) 5.5 Nm
(C) 100 m (D) 10 Nm
70. The engine which has main engine and the propeller system coupled together is called
- (A) ~~Out board engine~~ (B) Inboard engine
(C) Two stroke engine (D) Four stroke engine
71. The bottom most part of a diesel engine where the lubricating oil of the engine is collected and stored is
- (A) Manifold (B) Cylinder block
(C) ~~Crank case~~ (D) Cylinder head
72. The time lag in the actual ignition of fuel entering the chamber to the actual ignition of the fuel is called
- (A) ~~Ignition delay~~ (B) Ignition period
(C) Spark delay (D) Thermostatic delay

73. An out board engine has to be mounted on the
- (A) Stem of the boat
 - (B) Beam of the boat
 - ~~(C)~~ Centre line of the boat
 - (D) Starboard side of the boat
74. For cooking and cooling of cans, the equipment used is
- (A) Lacquering machine
 - (B) Can seamer
 - ~~(C)~~ Hydrostatic continuous cooker-cooler
 - (D) High temperature short time processor
75. A versatile equipment used to freeze fish of any size and shape of fish is
- (A) Fluidised bed freezer
 - ~~(B)~~ Air blast freezer
 - (C) Horizontal contact plate freezer
 - (D) Vertical plate freezer
76. The inner diameter of the cylinder of an IC engine is termed as
- (A) Stroke
 - ~~(B)~~ Bore
 - (C) TDC
 - (D) BDC
77. The stroke volume of an IC Engine is otherwise called as
- ~~(A)~~ Swept volume
 - (B) Clearance volume
 - (C) Specific volume
 - (D) Total volume

78. Which of the following is a complex nitrogenous organic substances of very high molecular weight present in the body of fish?

- (A) Fat (B) Vitamins
~~(C) Proteins~~ (D) Carbohydrate

79. Which of the following is the simplest form of drier works with solar energy?

- (A) Vacuum shelf drier
(B) Drum drier
(C) Spray drier
~~(D) Tent drier~~

80. The measure of water available to support microbial growth and chemical reactions is termed as

- (A) Water content
(B) Bound water
(C) Free water
~~(D) Water activity~~

81. Fish roe is an important source of vitamin

- (A) A ~~(B) B~~
(C) D (D) E

82. Odd man out

- (A) Smoking (B) Salting
~~(C) Freezing~~ (D) Drying

83. Which of the following is not a lacquering material?
- (A) Epoxy lacquer
 - (B) Vinyl lacquer
 - (C) Phenolic lacquer
 - ~~(D)~~ Ethoxy lacquer
84. Metal used for can manufacture is
- ~~(A)~~ Aluminium
 - (B) Iron
 - (C) Copper
 - (D) Tin
85. _____ is defined as the time in minutes required to inactivate an arbitrarily chosen number of spores of a given bacteria at a specified temperature
- ~~(A)~~ Thermal death time
 - (B) Decimal reduction time
 - (C) Z value time
 - (D) F value time
86. The step by which air from the headspace and the contents is removed prior to seaming the can
- ~~(A)~~ Exhausting
 - (B) Boiling
 - (C) Clinching
 - (D) Glazing
87. _____ is usually associated with canned crab meat
- (A) Honeycombing
 - (B) Curd
 - ~~(C)~~ Blue dis-coloration
 - (D) Mush

88. The period which elapses between the time at which a product with warm temperature is subjected to freezing process and the cryoscopic time reached is called
- (A) Frozen stage
 - ~~(B)~~ Pre - freezing stage
 - (C) Freezing stage
 - (D) Freezing time
89. Which freezing brings the product into direct contact with the refrigerant coil?
- (A) Sharp freezing
 - (B) Air blast freezing
 - (C) Plate freezing
 - ~~(D)~~ Immersion freezing
90. Which ice is used to reduce the fat rancidity resulting in bitter flavour compounds to those stored in air (or) O_2 ?
- (A) Rapid ice
 - ~~(B)~~ Dry ice
 - (C) Antibiotic ice
 - (D) Sea water ice
91. It is a condition in which exudate of tissue fluids that flow free fish muscle during thawing which results in a tough, dry and fibrous fish muscle is called
- ~~(A)~~ Thaw drip
 - (B) Thaw rigor
 - (C) Glazing
 - (D) Blanching

92. Which species is more resistant to the lethal action of freezing?
~~(A)~~ Aeromas (B) Vibrios
 (C) Coliforms (D) Coryneforms
93. Which is responsible for pink colour in salted cod?
~~(A)~~ Pseudomonas salinaria
 (B) Sporendonema epizoum
 (C) Shewanella putrefaciens
 (D) Clostridium botulinum
94. The main source of alginic acid in India is
 (A) Turbinaria (B) Padina
~~(C)~~ Sargassum (D) Cystophyllum
95. Which of the following product is prepared by fermentation process?
~~(A)~~ Fish silage (B) Fish meal
 (C) Fish peptone (D) Fish albumin
96. Unsaponifiable portion of squalene
 (A) 70 % (B) 75 %
~~(C)~~ 85 % (D) 80 %
97. What is fish plastein?
 (A) Fish meal (B) Fish oil
 (C) Fish leather ~~(D)~~ Fish protein
98. Centrifugation process in fish meal production separates
~~(A)~~ Oil and water
 (B) Press liquor and oil
~~(C)~~ Press liquor and stick water
 (D) Press cake and press liquor

106. (a) The phenomenon of decreasing affinity for oxygen binding with increased pH is known as Bohr effect.
(b) Carbonic acid affects the oxygen affinity of haemoglobin.
(A) (a) and (b) are correct
(B) (a) is correct and (b) is wrong
~~(C)~~ (a) is wrong and (b) is correct
(D) Both are wrong
107. (a) Aquaporins are involved in oocyte hydration in marine teleosts.
(b) Sertoli cells are somatic cells.
(A) (a) is correct and (b) is wrong
~~(B)~~ Both (a) and (b) are correct
(C) (a) is wrong and (b) is correct
(D) Both (a) and (b) are wrong
108. (a) Ampullae of Lorenzini are sensory organs in catfish.
(b) Gills in fish are effective heat exchangers aiding thermoregulation.
(A) Both (a) and (b) are correct
(B) Both (a) and (b) are wrong
~~(C)~~ (a) is wrong and (b) is correct
(D) (a) is correct and (b) is wrong
109. The oxygen carrying properties of haemoglobin are protected by the release of _____ in low pH.
~~(A)~~ Catecholamines (B) Lactic acid
(C) Glycogen (D) Uric acid

110. The coastal region of India where mullets form notable fishery is
- (A) South east coast (B) South west coast
(C) North east coast ~~(D) North west coast~~
111. Along the south west coast of India, an inverse relationship has been reported between the abundance of oil sardine and _____ during the year 1998 to 2008.
- (A) Tuna (B) Mulletts
(C) Porafrets ~~(D) Mackerel~~
112. Consumption of raw fish with this parasite causes serious health concern in humans
- (A) Gyrodactylus sp.
~~(B) Anisakis sp.~~
(C) Dactylogyrus sp.
(D) Diplostomum
113. The parameter 'C' in the seasonalized version of Von Bertalanffy growth equation of fish refers to
- (A) Summer point (B) Winter point
~~(C) Amplitude of growth oscillation~~ (D) Growth co-efficient
114. The technique used to indicate the pattern of growth with the length frequency graph is
- (A) Length – weight relationship technique
(B) Modal progression technique
(C) Virtual population analysis
~~(D) Cohort Analysis~~

115. Ponds supplied with rainwater are called as

- (A) Spring water ponds ~~(B)~~ Sky ponds
(C) Barrage ponds (D) Diversion ponds

116. 'Gley' used in sealing the pond bottom and dyke is a

- (A) Clay core (B) Brick lining
(C) PVC sheet lining ~~(D)~~ Biological plaster

117. The minimum free board to be maintained for large ponds

- (A) 0.1 m (B) 0.3 m
(C) 0.7 m ~~(D)~~ 0.5 m

118. Match the following :

- | | |
|--------------------------------|-----------------|
| (a) Carassius carassius | 1. Bighead Carp |
| (b) Mylopharyngodon piceus | 2. Mud Carp |
| (c) Hypophthalmichthys nobilis | 3. Crucian Carp |
| (d) Cirrhinus molitorella | 4. Black Carp |

- | | (a) | (b) | (c) | (d) |
|----------------|-----|-----|-----|-----|
| (A) | 4 | 3 | 2 | 1 |
| (B) | 1 | 4 | 3 | 2 |
| (C) | 3 | 4 | 1 | 2 |
| (D) | 2 | 1 | 4 | 3 |

119. The stickiness in the common carp eggs can be eliminated by treating the eggs with

- (A) salt water
(B) sodium chloride
(C) sodium hypochlorite
~~(D)~~ sodium chloride and carbamide

120. Breeding trap is generally used for the breeding of

- (A) Angels ~~(B)~~ Guppy
(C) Danio (D) Tetra

121. Naadan is a hybrid, crossed by
~~(A)~~ Rohu × Catla (B) Catla × Mrigal
 (C) Mrigal × Rohu (D) Grass carp × Silver carp
122. A molecular method recommended as gold standard for diagnosis of viral diseases in shrimp is
 (A) ELISA (B) LAMP
~~(C)~~ PCR (D) RFLP
123. Which of the following is affected by yellow head disease?
 (A) White shrimp (B) Pink shrimp
~~(C)~~ Tiger shrimp (D) Banana shrimp
124. EUS is very common in the species of
 (A) Perches (B) Carps
 (C) Barks ~~(D)~~ Murrels
125. The causative agent for black spot disease is
~~(A)~~ Diplostomum (B) Myxobolus
 (C) Costia (D) Gyrodactylus
126. One of the following species is a luminescent bacteria that causes “luminescent bacterial syndrome” in shrimp
 (A) vibrio campbelli
~~(B)~~ vibrio harveyi
 (C) vibrio parahaemolyticus
 (D) vibrio alginolyticus

127. Induced breeding using the pituitary hormone extracts in carp fishes is called
- (A) Spawning
(B) ~~Hypophysation~~
(C) Conditioning
(D) Weaning
128. Supplementation of carotenoids in the fish feeds used for ornamental fishes primarily improve the
- (A) ~~colour and attractiveness~~
(B) survival
(C) resistance to diseases
(D) reproduction efficiency
129. The Gestation period of Guppy is
- (A) 5 – 6 weeks
(B) 1 – 2 weeks
(C) ~~3 – 4 weeks~~
(D) 7 – 8 weeks
130. The plankton present in the running water habitat are termed
- (A) limnoplankton
(B) helioplankton
(C) haloplankton
(D) ~~rheoplankton~~
131. Daphnia longispina belongs to the order
- (A) Copepoda
(B) ~~Cladocera~~
(C) Decapoda
(D) Tintinnida
132. In ponds, the primary consumers are
- (A) ~~zooplankton~~
(B) phytoplankton
(C) zooplankton feeding fishes
(D) predatory fishes

133. Tide that exhibits the greatest change in dimension between the highest high and lowest low tide marks is known as
- ~~(A)~~ spring tide (B) neap tide
(C) red tide (D) yellow tide
134. The depth at which the amount of oxygen produced equals the amount of oxygen consumed is known as
- ~~(A)~~ compensation depth (B) critical depth
(C) oxygen minimum zone (D) productive zone
135. _____ are tropical flowering rooted plants that grow in sandy and muddy coastal areas that are protected from wave action and have high sedimentation rates.
- (A) Seagrasses ~~(B)~~ Mangroves
(C) Seaweeds (D) Salt marshes
136. _____ are the non-flowering and multicellular macroalgae.
- (A) Diatoms (B) Dinoflagellates
~~(C)~~ Seaweeds (D) Salt marshes
137. Paralytic Shellfish Poisoning (PSP) is caused by one of the following harmful bloom forming algal species
- (A) Noctiluca scintillans
~~(B)~~ Alexandrium fundyense
(C) Coscinodiscus gigas
(D) Rhizosolenia alata
138. Which one of the following disease is caused due to the cadmium heavy metal poisoning?
- (A) Minamata disease (B) Brown blood disease
~~(C)~~ Itai-Itai disease (D) Black lung disease

139. The cost due to technological externalities such as pollution, health hazard is called as
- (A) Associated cost (B) Real cost
(C) Indirect cost ~~(D) Social cost~~
140. Which of the following is not a current asset?
- (A) fish seeds (B) fish feed
~~(C) farm machineries~~ (D) brood stock
141. Networth of a fishing firm is a measure of
- (A) managerial ability of fishing fleet
(B) liquidity of the firm
(C) profitability of the firm
~~(D) financial position of the firm~~
142. The ratio of market output to market input is known as
- (A) market integration ~~(B) marketing efficiency~~
(C) price spread (D) marketing margin
143. When a fish farmer meets the fisheries extension worker at his work place, then it is called as
- (A) office visit (B) extension campaign
~~(C) farmer's call~~ (D) personal meeting
144. A systematic display of models, specimens, charts, photographs, pictures etc. to create awareness among people is called as
- (A) campaign ~~(B) exhibition~~
(C) Farmer's day (D) awareness programme

145. Induced breeding in penacid shrimps can be effected by
 (A) Ablation of chelipeds ~~(B) Eye stalk ablation~~
 (C) Ablation of uropod (D) Ablation of antenna
146. Studying the nature of fish food and dietary needs of fish body is called as
 (A) Fish in nutrition ~~(B) Fish nutrition~~
 (C) Aquaculture nutrition (D) Nutrition
147. Pearson's single square method is used when
~~(A) only two ingredients used~~
 (B) only one ingredient used
 (C) two and four ingredients used
 (D) two and five ingredients used
148. For formalin stress test, the dose rate for 100 shrimps is
 (A) 200 ppm formalin for 3 hrs ~~(B) 200 ppm formalin for 1 hr~~
 (C) 150 ppm formalin for 6 hrs (D) 1 ppm formalin for 1 hr
149. FCR is calculated by
 (A) feed given (wet weight)/weight gain (wet weight)
 (B) weight gain (wet weight)/feed given (dry weight)
~~(C) feed given (dry weight)/weight gain (wet weight)~~
 (D) weight gain (dry weight)/feed given (dry weight)
150. The most common shrimp pathogenic bacteria belong to the Genus
 (A) Bascillus ~~(B) Vibrio~~
 (C) Salmonella (D) Sterptococci
151. Indian pearl oyster production technology developed successfully by CMFRI scientist
 (A) Dr. Alikunhi ~~(B) Dr. K. Alagarswami~~
 (C) Dr. M.S. Swaminathan (D) Dr. Alavandan

152. An additional weight added below the deck level of a boat to bring the boat to the desired water line in order to ensure proper stability is called
- (A) dead weight (B) top weight
~~(C) ballast~~ (D) light ship weight
153. The centroid of the under water portion of the hull of a boat is called
- ~~(A) Centre of buoyancy~~ (B) Centre of gravity
 (C) Meta centre (D) Centre of floatation
154. The blades of the propeller are not set vertically. They remain bend towards aft slightly called
- ~~(A) Rake~~ (B) Skew
 (C) Pitch (D) Angle of attack
155. On the loft floor, the lines plan of the boat is drawn to
- ~~(A) full scale~~ (B) half scale
 (C) 1/10th of the full scale (D) 1/20th of the full scale
156. The ratio between the actual volume of displacement of a boat to its circumscribing rectangular box is called as
- ~~(A) block co-efficient~~
 (B) prismatic co-efficient
 (C) dead weight co-efficient
 (D) water plane area co-efficient
157. The vertical distance from the designed water line to the top of the weather deck is called
- (A) beam (B) draught
 (C) depth ~~(D) free board~~

158. Net that catches fishes by filtering water is called
- (A) Gill net (B) Dip net
(C) Seine net ~~(D) Veranda net~~
159. Cast net belongs to
- (A) Drift net ~~(B) Falling gear~~
(C) Lift net (D) Surrounding net
160. Perlon is derived from
- (A) Hexa methyl amine and adipic acid ~~(B) Poly carpolactum~~
(C) Kurlon (D) LDPE
161. The cabled netting yarn is otherwise called as
- (A) Twine ~~(B) Folded yarn~~
(C) Continuous filament (D) Braided netting yarn
162. The portion of trawl net where the fishes caught are collected is called
- (A) Bunt ~~(B) Cod end~~
(C) Flapper (D) Funnel
163. The otter boards most suited for pelagic trawling are
- (A) Cambered otter boards
(B) Polyvalent otter boards
(C) Oval otter boards
~~(D) Superkrub otter boards~~

164. The expansion for the acronym EPIRB is
- (A) Emergency Potential Information Radio Beacon
 - ~~(B)~~ Emergency Position Indicating Radio Beacon
 - (C) Estimated Position Indicating Radio Beacon
 - (D) Emergency Position Indicating Reference Beacon
165. Which part of Echosounder generates high voltage electric pulses of predetermined frequency?
- (A) Transducer
 - ~~(B)~~ Transmitter
 - (C) Receiver
 - (D) Recorder
166. Odd man out
- (A) Echosounder
 - ~~(B)~~ RADAR
 - (C) SONAR
 - (D) Net Sonde
167. The technique which is used to differentiate bottom dwelling fishes from sea bottom in echosounder is called as
- (A) Sounding technique
 - ~~(B)~~ White line technique
 - (B) TVG technique
 - (D) Projection technique
168. Which part of echosounder converts electrical energy into sound waves and vice versa?
- (A) Recorder
 - (B) Transmitter
 - (C) Receiver
 - ~~(D)~~ Transducer
169. Annual publication containing the information on position of celestial bodies is called as
- (A) Notion to Mariners
 - ~~(B)~~ Nautical Almanac
 - (C) Tide table
 - (D) Chart

170. During the electrical starting of engine the starter pinion engages with
- ~~(A)~~ Fly wheel
 - (B) Crank shaft
 - (C) Thrust bearing
 - (D) Cam shaft
171. The freezer which is most suitable for small sized and uniform products like shrimp fish fillet and small fish is
- ~~(A)~~ Fluidised bed freezer
 - (B) Horizontal plate freezer
 - (C) Vertical plate freezer
 - (D) Rotary drum freezer
172. The device that controls the flow of proper quantity of diesel into the engine cylinders at the correct time and predetermined rate is
- (A) Fuel injector
 - (B) Fuel filter
 - ~~(C)~~ Fuel injection pump
 - (D) Barrel
173. For starting diesel engines with the power exceeding 200 HP, the ideal starting system would be
- (A) Hand starting by lever
 - (B) Kick starting
 - (C) Electrical starting
 - ~~(D)~~ Air starting
174. The valve provided on the cylinder head of an IC Engine to facilitate easy cranking is called
- (A) Inlet valve
 - (B) Outlet valve
 - ~~(C)~~ Decompression valve
 - (D) Non return valve

175. Which of the following chemical exerts a high osmotic pressure giving rise to reduction in moisture content of the fish during processing?
- (A) Sodium metabisulphate
 - (B) Sodium carbonate
 - ~~(C)~~ Sodium chloride
 - (D) Sodium hydroxide
176. Which part of fish contains more quantity of glycogen?
- (A) Muscle
 - (B) Kidney
 - ~~(C)~~ Liver
 - (D) Bones
177. The pink spoilage in dry salted fish is caused by
- (A) E. Coli
 - ~~(B)~~ Halobacterium sp.
 - (C) Clostridium sp.
 - (D) Flavobacterium sp.
178. Presence of _____ ions in the salt catalyse the development of brown or yellow discolouration in salted fishes.
- ~~(A)~~ Copper
 - (B) Calcium
 - (C) Magnesium
 - (D) Aluminium
179. The boiling temperature of liquid nitrogen meant for fish freezing is
- ~~(A)~~ -195°C
 - (B) -195°F
 - (C) $+195^{\circ}\text{C}$
 - (D) $+195^{\circ}\text{F}$

180. Fish will come under the category of
- (A) Low acid foods
 - (B) Medium acid foods
 - (C) Acid foods
 - (D) High acid foods
181. Highly desirable temperature of storage of canned products is _____ °C
- (A) 32
 - (B) 10
 - (C) 28
 - (D) 26
182. External rusting of the can could be avoided by cooling the cans to _____ °C
- (A) 35
 - (B) 40
 - (C) 30
 - (D) 37
183. _____ method of exhausting is the best and most reliable.
- (A) Mechanical exhaust
 - (B) Steam injection
 - (C) Heat exhaust
 - (D) Heat and mechanical exhaust
184. Blanching removes
- (A) Taste
 - (B) Texture
 - (C) Flavour
 - (D) Blood and slime

185. Freezing is accomplished partly by contact at the bottom of the material and largely by the circulation of air by convection currents within the freezer is called
- (A) Immersion freezer
 - (B) Plate freezer
 - (C) Tunnel freezer
 - ~~(D)~~ Shelf freezer
186. It consists of hollow horizontal plates inside which copper pipes are fitted in a zig-zag manner, through which the refrigerant Freon 12 is circulated is called
- ~~(A)~~ Horizontal – plate freezer
 - (B) Vertical plate freezer
 - (C) Tunnel freezer
 - (D) Shelf freezer
187. It is the process of subjecting the products to heat treatment for a short interval of time prior to processing for freezing
- (A) Canning
 - (B) Glazing
 - ~~(C)~~ Blanching
 - (D) Icing
188. It is a process of dehydration subjecting the frozen material to a very high vacuum when water in its solid state is called as
- ~~(A)~~ Freeze – drying
 - (B) Drying
 - (C) Freezing
 - (D) Glazing

189. Percentage of oil in the press cake during fish meal production is
- (A) 1 - 2 % (B) 2 - 3 %
~~(C)~~ 3 - 4 % (D) 4 - 5 %
190. Fish meal is rich in _____ amino acid
- (A) Leucine ~~(B)~~ Lysine
(C) Tryptophan (D) Glycine
191. The level of free chlorine in process water shall be
- ~~(A)~~ < 2 ppm (B) < 1 ppm
(C) < 0.5 ppm (D) Nil
192. Presence of rodents in fish processing premises results in contamination of the product by
- ~~(A)~~ Salmonella (B) Vibrio
(C) Aeromonas (D) Staphylococcus
193. The fish that is not responsible for puffer fish poisoning
- (A) Puffer fish (B) Globe fish
(C) Toad fish ~~(D)~~ Star fish
194. The advisory agency in India engaged in facilitating HACCP application is
- ~~(A)~~ Bureau of Indian standards
(B) Department of agricultural marketing
(C) Export inspection agency
(D) Food safety and standards authority of India

195. When the product to be thawed is placed between two stainless steel plates and current is passed through them is called
- (A) Dielectric thawing
 - ~~(B)~~ Electrical resistance thawing
 - (C) Vacuum thawing
 - (D) Microwave thawing
196. This ice is produced with in 30 minutes of start and the melting time is less compared with other ices
- (A) Block ice
 - ~~(B)~~ Flake ice
 - (C) Rapid ice
 - (D) Antibiotic ice
197. For laminating the duplex carton _____ micron polypropylene is used.
- (A) 15
 - ~~(B)~~ 10
 - (C) 8
 - (D) 5
198. Freezing causes an initial reduction in the bacteria present in fish to the tune of
- (A) 50 – 60%
 - ~~(B)~~ 40 – 50%
 - (C) 50 – 55%
 - ~~(D)~~ 60 – 90%
199. During freezing, enzymatic activity of fish will cease at
- (A) -8°C
 - (B) -10°C
 - (C) -12°C
 - ~~(D)~~ -15°C
200. Omega 3 fatty acids are rich in
- ~~(A)~~ Sardines
 - (B) Anchovies
 - (C) Tuna
 - (D) Ribbon fish

SPACE FOR ROUGH WORK

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IV