

82/90
ENTRANCE EXAMINATION FOR ADMISSION, MAY 2010.

Ph.D. (MARINE BIOLOGY)

COURSE CODE : 119

Register Number :



Signature of the Invigilator
(with date)

COURSE CODE : 119

Time : 2 Hours

Max : 400 Marks

Instructions to Candidates :

1. Write your Register Number within the box provided on the top of this page and fill in the page 1 of the answer sheet using pen.
2. Do not write your name anywhere in this booklet or answer sheet. Violation of this entails disqualification.
3. Read each question carefully and shade the relevant answer (A) or (B) or (C) or (D) in the relevant box of the ANSWER SHEET using HB pencil.
4. Avoid blind guessing. A wrong answer will fetch you -1 mark and the correct answer will fetch 4 marks.
5. Do not write anything in the question paper. Use the white sheets attached at the end for rough works.
6. Do not open the question paper until the start signal is given.
7. Do not attempt to answer after stop signal is given. Any such attempt will disqualify your candidature.
8. On stop signal, keep the question paper and the answer sheet on your table and wait for the invigilator to collect them.
9. Use of Calculators, Tables, etc. are prohibited.

1. Fish liver oil contain high percentage of

(A) Vitamin A & E	(B) Vitamin K & D
(C) Vitamin A & D	(D) Vitamin A & K
2. Sperm whale produces a solid mass of waxy substances known as

(A) spermaceti	(B) ballen
(C) harpoon	(D) ambergris
3. The reefs are massive deposits of

(A) Calcium bicarbonate	(B) Sodium bicarbonate
(C) Calcium carbonate	(D) Calcium sulphate
4. Organisms that cannot control their salt concentrations are called

(A) osmo non-regulators	(B) osmonagative
(C) osmoconformers	(D) osmodefaulters
5. Release of excess nutrients in the coastal waters is caused due to a phenomena called

(A) eunutrification	(B) eutrofication
(C) hinutrification	(D) nitrification
6. A chemical released by a species that influences behavior in the same species is called

(A) pherochem	(B) hormone	(C) pheromone	(D) insulin
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7. Triacyl glycerol is mainly stored in

(A) kidney tissue	(B) liver tissue
(C) brain tissue	(D) adipose tissue
8. Which of the following best explains phytoplankton?

(A) these are the stacks of disks inside chloroplasts	(B) plants found in the sea
(C) a community of autotrophic microorganisms that live in the ocean	(D) a community of heterotrophic microorganisms that live in the ocean

9. Which of the following is accurate concerning "exons"?
 - (A) regions of tRNA which contain information used to make proteins
 - (B) regions of DNA which are NOT used to make protein
 - (C) exons are regions found on the post transcriptional mRNA that codes for polypeptides
 - (D) none of the above
10. Which of the following is a lyophobic colloid?
 - (A) sulphur
 - (B) gelatin
 - (C) starch
 - (D) gum arabic
11. Carboic acid is
 - (A) benzene
 - (B) phenyl acetate
 - (C) salol
 - (D) phenol
12. Cathode rays can be deflected by
 - (A) magnetic field only
 - (B) electric field only
 - (C) both type of fields
 - (D) none of the fields
13. Primary productivity is measured by
 - (A) Winkler's method
 - (B) Photography method
 - (C) Current meter
 - (D) None of the above
14. The largest marine mammal is
 - (A) Gray whale
 - (B) Sperm whale
 - (C) Beluga whale
 - (D) Blue whale
15. Epifauna are benthic animals that
 - (A) Swim in the sea
 - (B) Are sessile
 - (C) Crawl on the surface of sea bottom
 - (D) All the above
16. Both Balanus and Chthalamus are seen
 - (A) Deep sea
 - (B) Sandy shore
 - (C) Rocky shore
 - (D) Muddy shore

17. Zooxanthellae seen in corals are
 - (A) Plant pigments
 - (B) Unicellular algae
 - (C) Predators
 - (D) Waste materials
18. Bleaching is associated with
 - (A) Corals
 - (B) Reproduction
 - (C) Trophic level
 - (D) Seaweeds
19. The red plumed giant worm in hydrothermal vents are called as
 - (A) Riftia
 - (B) Balanoglossus
 - (C) Trochopore larvae
 - (D) Artemia
20. Physalia is commonly called as
 - (A) Jack -by the wind
 - (B) Will o the wisp
 - (C) Portuguese man of war
 - (D) Blue Indian
21. Euphausiids are seen in
 - (A) Salt lake
 - (B) Red sea
 - (C) Mediterranean sea
 - (D) Southern oceans
22. Elvers migrate from
 - (A) Indian ocean to Atlantic ocean
 - (B) Arabian sea to Bay of Bengal
 - (C) Sea water to marine
 - (D) All the above
23. Law of the sea is called as
 - (A) INCLOS
 - (B) LOS
 - (C) ENCLOS
 - (D) UNCLOS
24. Law of the sea enforced in the year
 - (A) 1994
 - (B) 1973
 - (C) 1960
 - (D) 1958
25. George Bank is located near
 - (A) Massachusetts
 - (B) New Found land
 - (C) Turkey
 - (D) Ecuador

26. Antarctic water exhibit huge quantity of
 (A) Penguin (B) Blue Whale
 (C) Dolphin (D) Krill
27. Wandoor marine National park is located near
 (A) Cambay (B) Kochi
 (C) Port Blair (D) Tuticorin
28. In a biosphere, the area not subjected to human activity is
 (A) Transition Zone (B) Intermediate Zone
 (C) Buffer Zone (D) Core Area
29. Red book is used for
 (A) Identification of endangered species (B) Identification of Marine Animals
 (C) Identification of Marine Mammals (D) Identification of Marine Plant
30. Antarctic Treaty signed in the year
 (A) 1961 (B) 1959 (C) 1982 (D) 1994
31. Regional seas programme, the south Asian seas consist of
 (A) Australia, Cambodia, China, Thailand
 (B) China, Sri Lanka, Bangladesh, Maldives
 (C) Bangladesh, India, Maldives, Pakistan, Sri Lanka
 (D) Madagascar, Kuwait, Bahrain, Iran, Iraq
32. Integrate coastal and marine area management is a programme of
 (A) National Institute of Oceanography
 (B) National Institute of Ocean Technology
 (C) Central Marine Fishery Research Institute
 (D) Department of Ocean Development
33. Guano is a useful
 (A) Chemical (B) Animal (C) Fertilizer (D) All the above

34. Imposex is caused by
 (A) Genetic disorders (B) Pollution by TBT
 (C) Oil pollution (D) All the above
35. Source material for biosynthesis of Acetyl-CoA through carbohydrate is
 (A) Succinate (B) Pyruvate (C) Malate (D) Citrate
36. Generation of glucose from other than carbohydrate source is called
 (A) Glycogenesis (B) Glycogenolysis
 (C) Gluconeogenesis (D) Glycolysis
37. Malate-aspartate shuttle system used for
 (A) Formation of Glucose (B) Formation of Lipid
 (C) Formation of Proteins (D) Formation of Amino acid
38. Microorganisms, although unable to grow, have low death rates in the presence of oxygen is called as
 (A) Oxylabile anaerobes (B) Oxydurin anaerobes
 (C) Anaerobes (D) Aerobic
39. Removing water from preserving microbial cultures by freeze drying is known as
 (A) Paterurisation (B) Canning
 (C) Lyophilization (D) Dry heat sterilization
40. The common cationic detergent used as a bactericidal is
 (A) Ethylene oxide (B) Aldehydes
 (C) Phenols (D) Quats
41. The bacteria to achieve a doubling of the population by certain amount of time is called as
 (A) Generation Time (B) Incubation Time
 (C) Budding Time (D) Growing Time

42. Mark the correct relationship
- (A) $S\text{‰} = 1.95655 \text{ Cl ‰}$ (B) $S\text{‰} = 1.60655 \text{ Cl ‰}$
 (C) $S\text{‰} = 1.80655 \text{ Cl ‰}$ (D) $S\text{‰} = 1.75655 \text{ Cl ‰}$
43. Which of the statement is correct in seawater
- (A) Ratios of radioactive constituents are constant
 (B) Ratios of major and trace constituents are constant
 (C) Ratios of trace constituents are constant
 (D) Ratios of major constituents are constant
44. One of the following materials are used as chemical tracers in oceanography
- (A) Uranium (B) Chlorofluorohydrocarbons
 (C) Thorium (D) Lead
45. Highly efficient host defence mechanism against the invasion of microorganisms is
- (A) Phagocytes (B) Granulocytes
 (C) Neutrophils (D) Leukocytes
46. Bond angle of water is
- (A) 105 (B) 108 (C) 180 (D) 120
47. Energy is transferred from the Sun to Earth mainly by.
- (A) red shifts (B) density currents
 (C) electromagnetic waves (D) molecular collisions
48. Depletion of atmospheric Ozone occurs mainly due to
- (A) CO (B) CO₂
 (C) CFC (D) None of the above

49. What is break water?
- (A) natural structures which protect a coastal region from the force of ocean waves
 - (B) an artificial structure constructed to protect a coastal region from the force of ocean waves
 - (C) both of the above
 - (D) none of the above
50. Branch of kuroshio current when enters to the sea japan it is known as
- (A) equatorial current
 - (B) canary current
 - (C) benguela current
 - (D) tsuchima current
51. Fishes are characterized by
- (A) two chamber heart
 - (B) venous heart
 - (C) branchial heart
 - (D) all the above
52. Gel is a system of
- (A) solid dispersed in liquid medium
 - (B) solid dissolved in liquid medium
 - (C) liquid dispersed in solid medium
 - (D) liquid dispersed in liquid medium
53. Water is a liquid due to the presence of
- (A) ionic bonding
 - (B) covalent bonding
 - (C) odd electron bond
 - (D) hydrogen bonding
54. The continuous root system of sea grasses is called as
- (A) rhizome
 - (B) tentacles
 - (C) pseudopod
 - (D) none of the above
55. What are sea weeds?
- (A) heterotrophs
 - (B) autotrophs
 - (C) mixotrophs
 - (D) all the above

56. Parapodia are the locomotory organs of
 (A) earthworm (B) leech
 (C) nereis (D) amoeba
57. What is cDNA?
 (A) Circular DNA
 (B) Cloned DNA
 (C) DNA produced from reverse transcription of RNA
 (D) Cytoplasmic DNA
58. Which is not emitted by radioactive substance?
 (A) α rays (B) β rays (C) positron (D) proton
59. What is benthic fauna?
 (A) animals live on ocean bottom
 (B) animals live on water surface
 (C) animals live by attaching on other organisms
 (D) animals live at different water depths
60. Which is most important feature among mangroves?
 (A) grow in salt water only (B) grow in fresh water only
 (C) exposed to sea water twice daily (D) all the above
61. Coral bleaching occurs due to
 (A) as a response to stress in the environment
 (B) loss of zooxanthellae
 (C) increased water temperature, UV radiation, sedimentation
 (D) all the above
62. The molar conductivity of an electrolyte increases as
 (A) dilution increases (B) temperature decreases
 (C) dilution decreases (D) none of the above is correct
63. The region of the atmosphere above troposphere is known as
 (A) ionosphere (B) mesosphere
 (C) stratosphere (D) none of these

64. NMR works on the principle of
 (A) Ultrasound imaging (B) Magnetic resonance
 (C) X-ray imaging (D) None of the above
65. Tides of low range during the period when the moon and sun are at right angles to each other is
 (A) spring tide (B) neap tide
 (C) red tide (D) low tide
66. The long wave generated in the ocean due to submarine earthquakes.
 (A) sunami (B) long wave
 (C) tsunami (D) none of the above
67. How much %ge of Bromine in the Earth's crust is found in the ocean
 (A) 90 (B) 89 (C) 99 (D) 95
68. Water contained in the pore spaces between the grains of sediment is called
 (A) interstitial (B) intraporous
 (C) interporous (D) intrastitial
69. Charles Darwin is well known as a great marine biologist because of
 (A) His work on coral reefs
 (B) His classification of the barnacles
 (C) His participation in the voyage of the H.M.S. Beagle
 (D) All of the above
70. Nekton
 (A) Move only with the currents
 (B) Include larger fish and sea mammals
 (C) Include protistan and other very small plankton
 (D) Are defined as swimmers who can dive very deeply
71. Animals living in association with the sea surface are called
 (A) Plankton (B) Krypton (C) Neuston (D) Epifaunal

72. Pelagic habitats
- (A) Are found in estuaries
 - (B) Are seaward of the continental shelf
 - (C) Are deep water habitats in shelf canyons
 - (D) All of the above
73. The mesopelagic zone ranges to depths of
- (A) 150 m
 - (B) bottom of tidal zone
 - (C) 2000 m
 - (D) 4000 m
74. The abyssal plain
- (A) Drains large river systems such as the Amazon River
 - (B) Is an average of about 4000 m depth
 - (C) Actually has a slope of 3 degrees seaward
 - (D) Never connects with an oceanic trench
75. Seasonal temperature changes are the greatest in
- (A) Polar waters
 - (B) The Equatorial region
 - (C) Mid-latitudes
 - (D) The deep sea
76. Trace elements in seawater include
- (A) Chlorine and potassium
 - (B) Sodium and aluminum
 - (C) Iron and strontium
 - (D) Sodium and chlorine
77. Salinity is often estimated by chlorinity because
- (A) Chlorine is the only major element of sea water
 - (B) Chlorine is in constant ratio to sodium and other major elements
 - (C) Chlorine can be separated from the sea water simply by evaporation
 - (D) Salinity is not estimated by chlorinity but by sodium concentration
78. Ultraviolet light is important because
- (A) It is harmful to marine life, owing to the damage it does to DNA
 - (B) It helps in photosynthesis
 - (C) It causes beneficial warming of living tissues
 - (D) It stimulates protein synthesis

79. Sea turtles
- (A) Feed and reproduce in the same areas
 - (B) Lay eggs underwater
 - (C) Migrate often thousands of kilometers between egg-laying and feeding areas
 - (D) Are all carnivorous
80. Marine snow
- (A) Forms only in Antarctic waters
 - (B) Is formed only in tropical clear ocean waters
 - (C) Is extremely pure particulate organic matter
 - (D) Is found throughout the ocean water column
81. Dissolved oxygen is usually measured chemically by
- (A) The polarographic method
 - (B) Radiometric techniques
 - (C) The Calvin method
 - (D) The Winkler method
82. Sponges feed by means of
- (A) Currents formed by amoebocyte cells
 - (B) Currents generated by muscular contraction
 - (C) Currents formed by collar cells
 - (D) External water currents only
83. Torsion
- (A) Is found in mollusks that lack a radula
 - (B) Is found in only the scaphopods
 - (C) Is an important feature of gastropods
 - (D) Refers to the spiral form of the shell
84. All arthropods share
- (A) A calcified internal skeleton
 - (B) A calcified external skeleton
 - (C) An external skeleton composed of chitin
 - (D) A strictly marine habitat

85. An individual seaweed attached to the substratum is known as a
 (A) Stipe (B) Holdfast (C) Thallus (D) Blade
86. Sea grasses differ from seaweeds
 (A) In having the ability to spread asexually
 (B) In having chlorophyll
 (C) In living on soft sediment
 (D) In having flowers
87. Meiobenthos
 (A) Are greater than 1 mm in size (B) Are always epifaunal
 (C) Are smaller than 0.5 mm (D) Are smaller than microbenthos
88. Interstitial animals all
 (A) Are usually worm-like in shape (B) Can swim away from the sediment
 (C) Have high fecundity (D) All of the above
89. The RPD
 (A) Is a border between the presence and absence of bacteria
 (B) Is only found in estuarine sediments
 (C) May only be a horizontal surface
 (D) Is a border between oxidative and reducing processes in sediments
90. Wood boring
 (A) Is found only in the bivalves
 (B) Involves chemical action only in bivalves
 (C) Is found only in isopods
 (D) Is found in bivalves and isopods
91. Spermaceti organ is seen in
 (A) Sperm whale (B) Baleen whale
 (C) Shark fish (D) Teleost fish
92. Guano is a useful
 (A) Chemical (B) Animal
 (C) Fertilizer (D) All the above

93. India has conducted ————— Antarctic expedition
(A) 19 (B) 22
(C) 23 (D) 25
94. Mariculture is study of
(A) Farming marine organisms (B) Study of marine organisms
(C) Induced breeding (D) All the above
95. *Peneaus monodon* is
(A) Shrimp (B) Fish
(C) Crab (D) None of the above
96. An enzyme is
(A) Lipid (B) Protein
(C) Carbohydrate (D) Both lipid and protein
97. Restriction Enzymes are
(A) To synthesize ATP (B) To synthesize RNA
(C) To synthesize DNA (D) To cut DNA at places
98. In a sucker fish the sucker is a modification of
(A) Dorsal fin (B) Gill slit
(C) Mouth (D) Ventral fin
99. TMAO is an indicator of
(A) The freshness of fish (B) Chemical synthesis
(C) Enzyme activity (D) None of the above
100. GOOS refers to
(A) General Operating office system (B) Global Ocean Observing system
(C) Global Ongoing Observatory survey (D) All the above