

ENTRANCE EXAMINATION FOR ADMISSION, MAY 2011.

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) or (E) 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. Stenohaline
 - (A) high salinity tolerance
 - (B) low salinity tolerance
 - (C) tolerance to different salinity variations
 - (D) tolerate narrow range of pressure

2. Deepest part of the ocean zone deeper than 6,000 meters called
 - (A) oceanic
 - (B) pelagicl
 - (C) hadal
 - (D) bathyal

3. Most common salt found in the sea
 - (A) NaCO
 - (B) NaSO₄
 - (C) NaCl
 - (D) KCO₃,

4. Most common kind of zooplankton found in the oceans?
 - (A) Decapod
 - (B) Copepods
 - (C) Pluteus
 - (D) Zoea

5. Any species occurring naturally in one area is known as
 - (A) invasive
 - (B) endemic
 - (C) native
 - (D) none of the above

6. Which oceanographic equipment is the best to use for measuring seawater salinity?
 - (A) hydrometer
 - (B) chemical Test Kit (Knudsen Titration)
 - (C) refractometer
 - (D) none of the above

7. Fishes, which spend most time in sea but migrate to freshwater for breeding area?
 - (A) catadromus
 - (B) anadromous
 - (C) oceanodromus
 - (D) none of the above

8. Diatoms are best explained as.
 - (A) microscopic phytoplankton
 - (B) microscopic forms of nekton
 - (C) microscopic zooplanktons
 - (D) none of the above

9. Bay is best explained as
 - (A) a coastal body of water enclosed by land on one side and open to the water on three sides
 - (B) an enclosed coastal body of water
 - (C) coastal body of water enclosed by land on three sides and open to the water on one side
 - (D) all the above

10. Minamata disease was caused due to
(A) Pb poisoning (B) Hg poisoning
(C) Sn poisoning (D) DDT poisoning
11. Fish liver oil contain high percentage of
(A) Vitamin A & E (B) Vitamin K & D
(C) Vitamin A & D (D) Vitamin A & K
12. Sperm whale produces a solid mass of waxy substances known as
(A) spermaceti (B) ballen
(C) harpoon (D) ambergris
13. The reefs are massive deposits of
(A) Calcium bicarbonate (B) Sodium bicarbonate
(C) Calcium carbonate (D) Calcium sulphate
14. Organisms that cannot control their salt concentrations are called
(A) osmo non-regulators (B) osmonagative
(C) osmoconformers (D) osmodefaulters
15. Release of excess nutrients in the coastal waters is caused due to a phenomena called
(A) eunutrification (B) eutrofication
(C) hinutrification (D) nitrification
16. A chemical released by a species that influences behavior in the same species is called
(A) pherochem (B) hormone
(C) pheromone (D) insulin
17. Triacyl glycerol is mainly stored in
(A) kidney tissue (B) liver tissue
(C) brain tissue (D) adipose tissue
18. 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

19. 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
20. Which of the following is a lyophobic colloid?
- (A) sulphur
 - (B) gelatin
 - (C) starch
 - (D) gum arabic
21. Carboic acid is
- (A) benzene
 - (B) phenyl acetate
 - (C) salol
 - (D) Phenol
22. Cathode rays can be deflected by
- (A) magnetic field only
 - (B) electric field only
 - (C) both type of fields
 - (D) none of the fields
23. Taking samples of ocean water can be accomplished by all of the following except
- (A) Van Dorn Bottle
 - (B) Nansen Bottle
 - (C) Petersen grab
 - (D) Surface Sample Bottle
24. Ribosomes are constructed in the
- (A) endoplasmic reticulum
 - (B) nucleoid
 - (C) nuclear pore
 - (D) nucleolus
25. The mitochondrion functions in
- (A) ATP synthesis
 - (B) DNA replication
 - (C) Photosynthesis
 - (D) Protein synthesis
26. The chloroplast functions in
- (A) lipid storage
 - (B) photosynthesis
 - (C) protein synthesis
 - (D) respiration
27. Which theory explains the possible origin of chloroplasts and mitochondria?
- (A) endosymbiosis
 - (B) evolution
 - (C) endocytosis
 - (D) cells

28. Standard sound wave measurements in the sea water by the marine scientists made with the
- (A) RADAR (B) Fathometer
(C) SONAR (D) None of the above
29. Standing crop is best defined as
- (A) biomass of an area
(B) biomass of a population over a period of time
(C) biomass of a population present at any given moment
(D) all the above
30. In which of the following remote sensing technique is not used?
- (A) Forest density (B) Medical treatment
(C) Ocean primary productivity (D) Wetland mapping.
31. Energy is transferred from the Sun to Earth mainly by
- (A) red shifts (B) density currents
(C) electromagnetic waves (D) molecular collisions
32. Depletion of atmospheric Ozone occurs mainly due to
- (A) CO (B) CO₂
(C) CFC (D) None of the above
33. 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
34. 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
35. Fishes are characterized by
- (A) two chamber heart (B) venous heart
(C) branchial heart (D) all the above

36. 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
37. Water is a liquid due to the presence of
 (A) ionic bonding (B) covalent bonding
 (C) odd electron bond (D) hydrogen bonding
38. The continuous root system of sea grasses is called as
 (A) rhizome (B) tentacles
 (C) pseudopod (D) none of the above
39. What are sea weeds?
 (A) heterotrophs (B) autotrophs
 (C) mixotrophs (D) all the above
40. Parapodia are the locomotory organs of
 (A) earthworm (B) leech (C) nereis (D) amoeba
41. What is cDNA?
 (A) circular DNA
 (B) cloned DNA
 (C) DNA produced from reverse transcription of RNA
 (D) cytoplasmic DNA
42. Which is not emitted by radioactive substance?
 (A) α rays (B) β rays (C) positron (D) proton
43. Which of the following is insecticide?
 (A) DDT (B) TNT (C) TBT (D) TPT
44. If there were no atmosphere, the average temperature on the surface of the earth would be
 (A) higher (B) same as now (C) lower (D) 0°C
45. The ozone layer absorbs
 (A) infrared radiation (B) ultraviolet radiation
 (C) X-rays (D) γ -rays

46. The light given by planktonic organisms in the sea at night is due to.
(A) reflection of moon light (B) bioluminescence
(C) fluorescence (D) none of the above
47. Which of the following is most accurate concerning "uracil"?
(A) Found in DNA (B) Found in RNA
(C) Found only in mRNA (D) Found both in DNA and RNA
48. Which of the following is a major site at which proteins are assembled from amino acids to make a protein chain?
(A) in mitochondria
(B) in chloroplasts
(C) in the nucleus
(D) on ribosomes in the cytosol (cytoplasm)
49. The series of mitotic divisions that occurs directly after a zygote is formed is known as
(A) fertilization (B) cleavage
(C) meiosis (D) parthenogenesis
50. Maximum growth rate occurs in
(A) exponential phase (B) log phase
(C) stationary phase (D) senescence phase
51. Pneumatophores show
(A) positive geotropism (B) negative geotropism
(C) thigmotropism (D) negative phototropism
52. Polymorphism is due to
(A) monogenic inheritance (B) polygenic inheritance
(C) both of the above (D) none of the above
53. Point mutations are caused by
(A) substitution (B) insertion (C) deletion (D) all of these
54. Down's syndrome is a typical case of
(A) trisomy (B) monosomy (C) nullisomic (D) tetraploid

55. In a codon wobbling is restricted to
 (A) first N base (B) second N base
 (C) third N base (D) none of these
56. Sea Urchins are
 (A) coelenterate (B) echinoderm
 (C) crustacean (D) none of the above
57. Primary productivity in the sea is carried out by
 (A) phytoplankton (B) zooplankton
 (C) nanoplankton (D) all the above
58. Larval stage of horseshoe crab is best known as
 (A) megalopa (B) trilobite (C) nauplius (D) cyprid
59. Kuroshio current is associated with
 (A) Atlantic ocean (B) Pacific ocean
 (C) Indian ocean (D) Antarctic ocean
60. The region of the atmosphere above troposphere is known as
 (A) Ionosphere (B) Mesosphere
 (C) Stratosphere (D) None of these
61. Sea water acts as a membrane due to its
 (A) density (B) surface tension
 (C) viscosity (D) turbidity
62. Thermohaline circulation in the ocean is caused due to
 (A) viscosity (B) difference in temperature
 (C) differences in density (D) difference in pressure all the above
63. Insular self region is defined as
 (A) self region surrounding the continents
 (B) self region surrounding the islands
 (C) self region surrounding the coast line
 (D) all the above

64. Strong currents which occur along the eastern coasts of the USA and Japan are
 (A) eastern boundary current (B) southern boundary current
 (C) western boundary current (D) northern boundary current
65. Warm current along the southwest coast of America, which brings dry weather
 (A) El Nino (B) El Nano
 (C) El Lilio (D) La Lilo
66. A theoreticallin which joins points of equal salinity is
 (A) pycnohalaine (B) stenohaline
 (C) euryhaline (D) isohaline
67. What effect does falling sea level have on a coastline?
 (A) it makes the coast more straight (B) it makes the coast emergent.
 (C) it makes the coast more jagged (D) it makes the coast submergent
68. Type of estuary results from a high output of fresh water from rivers?
 (A) hypersaline estuary (B) partially mixed estuary
 (C) salt wedge estuary (D) well-mixed estuary
69. What are drowned glacial valleys called?
 (A) fjords (B) lagoons (C) lakes (D) seas
70. Drowned river valleys form
 (A) lagoons (B) lakes (C) estuaries (D) bays
71. If wetlands reclaimed by filling what environmental concern it may cause
 (A) destruction of breeding grounds
 (B) flooding from hurricanes and other storms
 (C) liquifaction during earthquakes
 (D) all of the above
72. Which molecule serves as the major energy currency of both aquatic and terrestrial animal cells?
 (A) DNA (B) ATP (C) mRNA (D) tRNA

73. A minimal nutrient level is found the surface waters of
(A) arctic (B) tropics
(C) 30 degrees latitude (D) 60 degrees latitude
74. The zone of the ocean where there is not enough sunlight for the rate of photosynthesis to exceed respiration is called
(A) photic zone (B) neritic zone
(C) aphotic zone (D) coastal zone
75. Comparing to average ocean salinity, what is the salinity of seawater after the formation of sea ice?
(A) slightly lower (B) greater
(C) significantly lower (D) equal
76. The acid which does not contain $-COOH$ group is
(A) ethanoic acid (B) palmitic acid
(C) lactic acid (D) picric acid
77. The light given by the glow worm is due to
(A) reflection of moon light (B) bioluminescence
(C) fluorescence (D) none of the above
78. Rocky intertidal species exposed to air cope with potential desiccation by
(A) avoiding the hot sun by moving or growing in damp crevices
(B) sealing of shells and other coverings to prevent water loss
(C) having a tolerance for loosing up to 90% of the body water
(D) all the above
(E) both (A) and (B)
79. Which of the following is a major component of crustaceans skeleton?
(A) chitin (B) peptidoglycan
(C) cellulose (D) mannitol
80. 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

81. 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
82. 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
83. The molar conductivity of an electrolyte increases as
 (A) dilution increases (B) temperature decreases
 (C) dilution decreases (D) none of the above is correct
84. The region of the atmosphere above troposphere is known as
 (A) ionosphere (B) mesosphere
 (C) stratosphere (D) none of these
85. NMR works on the principle of
 (A) ultrasound imaging (B) magnetic resonance
 (C) X-ray imaging (D) none of the above
86. 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
87. The long wave generated in the ocean due to submarine earthquakes.
 (A) sunami (B) long wave
 (C) tsunami (D) none of the above
88. How much %ge of Bromine in the Earth's crust is found in the ocean?
 (A) 90 (B) 89 (C) 99 (D) 95
89. Water contained in the pore spaces between the grains of sediment is called
 (A) interstitial (B) intraporous
 (C) interporous (D) intrastitial

90. Reduced water clarity resulting from the presence of suspended matters is called
 (A) turbidity (B) viscosity (C) sledge (D) swell
91. The process of transfer of air or water by horizontal motion is
 (A) convection (B) advection
 (C) adjuction (D) adiabection
92. The discharge of condensed water vapour by atmosphere in the form of rain, hail or snow is
 (A) condensation (B) perspiration
 (C) precipitation (D) vapourisation
93. A simple device to measure visible light transmission in the ocean is
 (A) secchi disc (B) photo disc (C) SOFAR (D) SONAR
94. The region of rapid density change with water depth is called
 (A) thermocline (B) pycnocline (C) halocline (D) panocline
95. A ring shaped coral island surrounded by the open sea and which encloses a lagoon is
 (A) apogee (B) apoll (C) atoll (D) lagoon
96. Marine sediments formed at the spot as a result of chemical processes
 (A) archipelagic (B) archibenthic (C) authigenic (D) biogenic
97. A specialized cell capable of generating a new individual is called
 (A) parthenogenetic (B) primordial germ cell
 (C) totipotent (D) cortical granule
98. The tube created from the ectoderm at the end of gastrulation is called
 (A) branching tube (B) neural tube
 (C) marginal tube (D) vascular tube
99. An area of soft, flat, wet land which is periodically inundated by salt water is called
 (A) marsh (B) creek (C) wet land (D) sound
100. To measure photosynthetic activity in the laboratory, which container can be used?
 (A) green bottle (B) light bottle
 (C) photo bottle (D) all the above
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