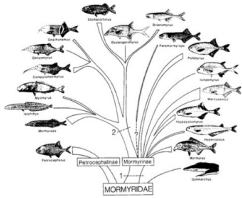


FT 274 – Fisheries Biology – Exam 1 (1.5 hours)



1) Taxonomy is the science of describing and classifying organisms.

*a. True

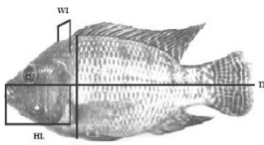
b. False



2) A monophyletic group includes an ancestor and all of its descendants.

*a. True

b. False



TL - total length; HL - head length; HE - height; W - width.
Figure 1 - Morphometric measurements obtained in Nile tilapia from ponds and net-cages.

3) Which of the following is NOT a category for classifying organism taxonomy?

a. Meristic traits

b. Anatomical characteristics

c. Morphometric measurements

*d. Reproductive timing

4) Meristic traits are anatomical features that can be counted.

*a. True

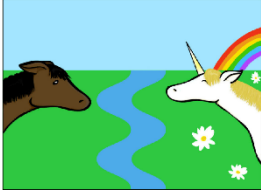
b. False



5) Genotypic genetic variations are characteristics that are expressed like color.

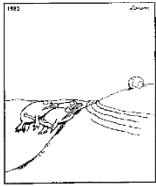
a. True

*b. False



- 6) Allopatric speciation is when two species diverge in the same geographic area to fill different niches.
- a. True
 - *b. False

- 7) How long does it take for evolution to show up at the species level for marine fish?
- a. 20-30 years
 - b. 500-1000 years
 - *c. 100,000 to 1,000,000 years
 - d. 5,000-10,000 years



- 8) Early evolutionary forms of fish were likely sessile chordates with a planktonic larval form.
- *a. True
 - b. False
- 9) Which of the following are NOT one of the three main fish groups?
- a. Chondrichthyes
 - *b. Proriferans
 - c. Teleosts
 - d. Agnathans



- 10) The two main groups of Agnathan fish are the Lampreys and the Hagfish.
- a. True
 - *b. False
- 11) Hagfish are known to be parasites on other fish with most species living in fresh water for at least part of their lives.
- a. True
 - *b. False
- 12) Hagfish are the only known living animal with a skull but no vertebral column.
- *a. True
 - b. False



13) Which is not in the group Gnathostomata?

- a. Placoderms
- b. Chondrichthyes
- c. Osteichthyes
- *d. Heliioichthyes

14) Which of the following is NOT a fish in the Chondrichthyes?

- *a. Lungfish
- b. Skates
- c. Sharks
- d. Rays



15) Elasmobranchs have a cartilage-based skeleton.

- *a. True
- b. False

16) Different from most other fish, sharks have gonads near their hearts.

- *a. True
- b. False

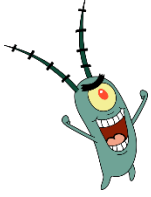


17) In the Holocephali, the “Ratfish,” males have claspers both on their head and on their pelvic fins.

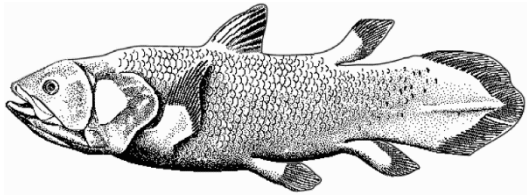
- *a. True
- b. False

18) What is the name of the group often called, the “Bony fish.”

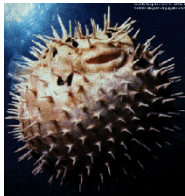
- a. Chondrichthyes
- *b. Osteichthyes
- c. Aganathans
- d. Siphonophores



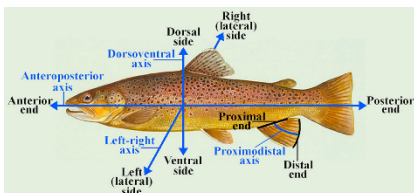
- 19) Which of the following is NOT in the Sarcopterygii, the “Lobe-finned fish?”
- a. Coelacanth
 - b. Lungfish
 - *c. Trilocanth
 - d. Tetrapods



- 20) Coelacanth went extinct 66 million years ago.
- a. True
 - *b. False
- 21) 96% of all living fish species are in the Teleost group.
- *a. True
 - b. False



- 22) Which of the following is not a trait of the Teleosts?
- *a. Upper jaw fused to the skull
 - b. Homocercal tail
 - c. Ossified skeleton
 - d. Swim bladder



- 23) Which of the following has a depressiform body shape?
- a. Ratfish
 - *b. Halibut
 - c. Salmon
 - d. Tuna



24) Which of the following has Fusiform body shape?

- a. Ratfish
- b. Halibut
- c. Salmon
- *d. Tuna

25) Which of the following would be considered an Ambush Predator?

- a. Sailfish
- b. Halibut
- *c. Barracuda
- d. American eel

26) Which of the following would be considered a Rover Predator?

- *a. Sailfish
- b. Halibut
- c. Barracuda
- d. American eel

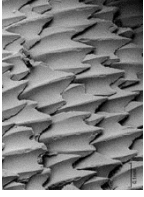


27) Fish scales are dermally (skin) derived.

- *a. True
- b. False

28) Which of the following is not a type of fish scale?

- a. Placoid
- b. Ganoid
- *c. Rhomboid
- d. Ctenoid



29) What type of scales would a shark have?

- *a. Placoid
- b. Ganoid
- c. Rhomboid
- d. Ctenoid



30) Pelvic fins directly under the pectoral fish would be considered which of the following?

- a. Abdominal
- *b. Thoracic
- c. Jugular
- d. Dorsal

31) Pectoral fins usually aid in locomotion and stability.

- *a. True
- b. False



32) In Rover Predators, dorsal and anal fins provide stability while swimming at high speeds.

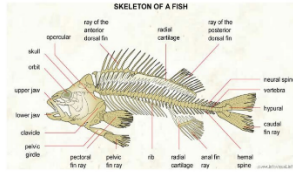
- *a. True
- b. False

33) The caudal fin of most marine fish provides stability.

- a. True
- *b. False

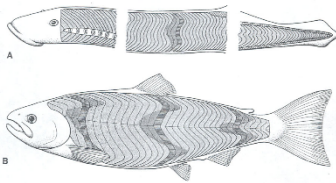
34) A homocercal tail has a larger upper lobe than the lower lobe.

- a. True
- *b. False



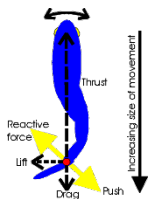
- 35) Fish skulls are important for all of the following, EXCEPT:
- a. Entry point for water for gas exchange
 - b. Site of sensory organs
 - *c. Assists with ion regulation
 - d. Entry point for food

- 36) A surface feeding fish will have which kind of mouth?
- a. Terminal
 - b. Inferior
 - *c. Superior
 - d. Subterminal



- 37) Which type of fish muscle is associated with short bursts of speed?
- *a. White
 - b. Red
 - c. Pink
 - d. Black

- 38) Which type of fish muscle is associated with the production of lactate due to a lack of oxygen for glycolysis?
- *a. White
 - b. Red
 - c. Pink
 - d. Black



- 39) The two ways a fish can increase speed are increasing the amplitude (distance) or number of beats.
- *a. True
 - b. False

40) The American eel would likely fall under which swimming category?

- a. Carangiform
- *b. Anguiliform
- c. Ostraciform
- d. Tunniform

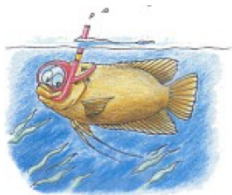


41) Yellowfin tuna would likely fall under which swimming category?

- a. Carangiform
- b. Anguiliform
- c. Ostraciform
- *d. Tunniform

42) Which type of swimming requires the least amount of head movement?

- a. Carangiform
- b. Anguiliform
- c. Ostraciform
- *d. Tunniform



43) Where on the gills does gas exchange occur?

- a. Gill arch
- *b. Lamellae
- c. Gill filament
- d. Operculum

44) Counter-current exchange is the efficient extraction of oxygen into the blood by water and blood moving in the SAME direction.

- a. True
- *b. False



45) Which type of gill ventilation is associated with forage fish swimming with their mouths open?

- a. Buccal pumping
- b. Ram pumping
- *c. Ram ventilation
- d. Buccal extraction

46) Which type of gill ventilation involves opening the mouth with a closed operculum and then by closing the mouth and opening the operculum?

- *a. Buccal pumping
- b. Ram pumping
- c. Ram ventilation
- d. Buccal extraction

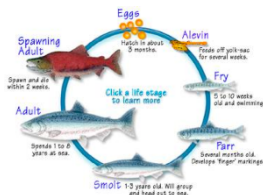


47) Anoxic conditions are areas like tidepools that have slightly lower levels of oxygen due to fish and invertebrate ventilation.

- a. True
- *b. False

48) Which of the following is NOT a non-gill breathing strategy?

- a. Respiratory trees
- *b. Caeca ventilation
- c. Cutaneous (skin) breathing
- d. Mouth breathing



49) Oxygen absorption through the skin is likely very important for many fish groups, particularly in larval fish.

- *a. True
- b. False

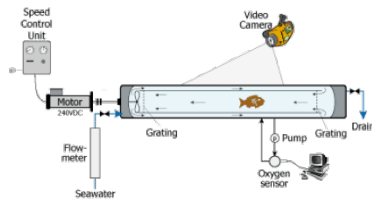
50) Which of the following processes do NOT require oxygen?

- *a. Ion exchange
- b. Movement – muscle contraction

- c. Digestion
- d. Growth

51) Which of the following does NOT impact oxygen usage in fish?

- a. Size
- *b. Camouflage
- c. Life stage
- d. Activity level



52) What is the name for the instrument that measures oxygen usage in fish?

- a. Fish Oxygen Extractor (FOE)
- b. Cardiogram
- *c. Respirometer
- d. Gillometer

53) The main blood pigment that carries oxygen in fish is called Myoglobin.

- a. True
- *b. False



54) The two basic blood cells in fish are the Leucocytes and the Hemocytes.

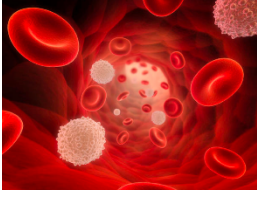
- a. True
- *b. False

55) The number of red blood cells in a fish may change throughout the lifecycle.

- *a. True
- b. False

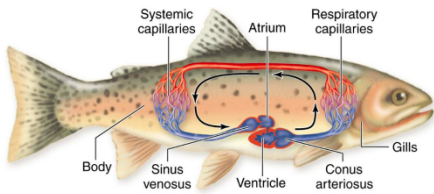
56) Which of the following drive oxygen off of the Hemoglobin at the tissues?

- a. Wastes
- *b. Carbon dioxide (CO₂)
- c. Higher oxygen affinity of the tissues
- d. Leucocytes



57) For fish, most of the oxygen carried in the Hemoglobin of the Erythrocytes.

- *a. True
- b. False



58) Fish hearts pump deoxygenated blood away from the heart.

- *a. True
- b. False

59) Each Hemoglobin molecule has the ability to bind how many molecules of oxygen?

- a. 2
- b. 6
- c. 8
- *d. 4

60) As the P50 in fish increases, the oxygen affinity decreases.

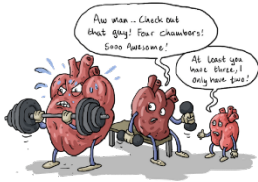
- *a. True
- b. False

61) In acidic environments, Hemoglobin has a decreased oxygen affinity due to configuration of binding sites. This is called the:

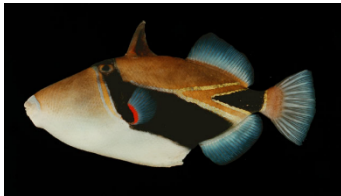
- *a. Bohr effect
- b. Root effect
- c. P50
- d. Counter-current exchange



- 62) Which of the following is the correct order, considering oxygenated water entering a fish mouth?
- a. Oxygen extracted at gills, heart pumps blood, oxygen dumped at tissues, deoxygenated blood and wastes to heart
 - b. Oxygen dumped at tissues, deoxygenated blood and wastes to heart, oxygen extracted at gills, heart pumps blood
 - c. Oxygen extracted at gills, oxygen dumped at tissues, heart pumps blood, deoxygenated blood and wastes to heart
 - *d. Oxygen extracted at gills, oxygen dumped at tissues, deoxygenated blood and wastes to heart, heart pumps blood



- 63) Most fish have a three-chambered heart.
- a. True
 - *b. False



- 64) Which of the following is NOT a characteristic of most fish species?
- a. Lateral-line
 - *b. Warm-blooded
 - c. Scales
 - d. Vertebrae

- 65) How many more times dense is water compared to air?
- *a. 800
 - b. 200
 - c. 5
 - d. 50

- 66) Saltwater covers what percentage of the earth's surface?
- a. 60%
 - *b. 70%
 - c. 97%
 - d. 58%

67) Most fish species are found in the open ocean.

a. True

*b. False

68) What did your instructor study for his Ph.D.?

a. Steller sea lions

b. Jellyfish

*c. Octopus

d. Seastars