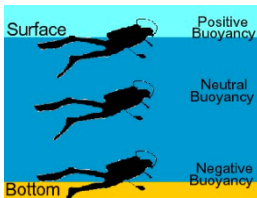


FT 274 – Fisheries Biology – Exam 2 (1.5 hours)

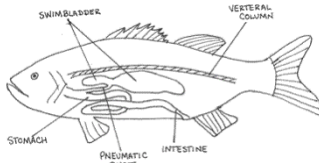


1) Which of the following is NOT a way that fish achieve neutral buoyancy?

- a. Low density compounds
- b. Swim bladders
- *c. Increasing surface area via spines and structures
- d. Reduction of heavy tissues

2) Teleosts use general movement patterns and ridged pectoral fins to produce lift.

- a. True
- *b. False



3) Without a swim-bladder, a fish may need to spend 20% more energy to achieve neutral buoyancy.

- *a. True
- b. False

4) The physoclistous swim bladder are connected to the gut via a pneumatic duct.

- a. True
- *b. False

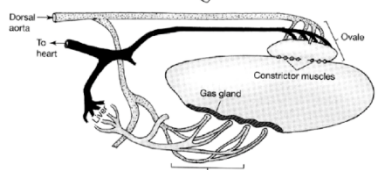


5) According to Boyle's Law, the air in a fish's swim bladder will increase in density and decrease in volume while descending.

- *a. True
- b. False

6) 2/3 of all Teleosts have a physoclistous swim-bladder.

- *a. True
- b. False

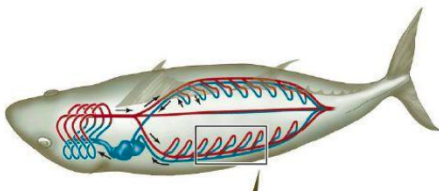


7) anatomia.com/239-Halibut-2443-in-Malabar-100772014401.jpg
 What does the term “rete mirabile” mean?

- *a. Wonderful net
- b. Gas exchanger
- c. Swim bladder
- d. Buoyancy compensator

8) Most fish are ectothermic (ie. They have a temperature similar to that of their environment).

- *a. True
- b. False



9) Which fish group are known to have “Brain heaters” and/or “eye heaters?”

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

10) Most fish need to maintain a certain amount of both fresh water and solutes.

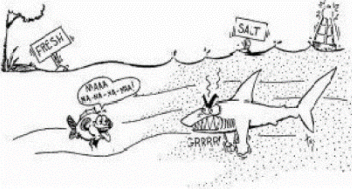
- *a. True
- b. False

11) What term means maintaining a steady state equilibrium in the internal environment of an organism?

- a. Counter-current exchange
- b. Anoxic
- *c. Homeostasis
- d. Pycnostasis

12) Stenohaline makes reference to organisms that can tolerate a wide range of salinities

- a. True
- *b. False



13)

Almost all fish ingest some water while eating.

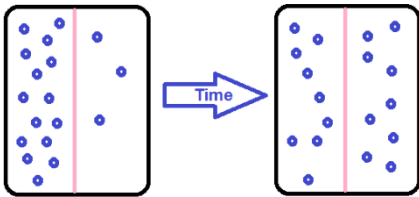
- *a. True
- b. False

14) Hagfish are considered to be stenohaline osmoconformers.

- *a. True
- b. False

15) Which of the following fish groups maintain an internal solute concentration of 1/3 seawater and 2/3 urea and Trimethylamine oxide (TMAO)?

- a. Agnathans
- b. Teolosts
- *c. Elasmobranchs
- d. Lungfish



16)

For most Teleosts and Lampreys, gills are the primary site for Na CL ion excretion.

- *a. True
- b. False

17) Most diadromous fish are considered to be Stenohaline.

- a. True
- *b. False

18) One of the ways to reduce stress in fish is to minimize their osmotic challenges by placing fish in waters in which they are iso-osmotic.

- *a. True
- b. False

19) Which of the following is NOT a fish feeding habit?

- a. Detritivores
- b. Carnivores
- c. Piscivores
- *d. Ambush-Predators



20)

Piscivores are fish that feed to dead organic material off of the bottom

- a. True
- *b. False

21) Most fish are classified as Euryphagous Carnivores.

- *a. True
- b. False



22)

Fish with longer guts (intestines) tend to be algal/detritus feeders.

- *a. True
- b. False

23) What is the organ found in most Teleosts that secretes enzymes near the stomach that helps in breaking down food?

- *a. Pyloric caeca
- b. Esophagus
- c. Spiracle
- d. Rectum

24) The term Friability mean the “palatability and shape” of food items.

- *a. True
- b. False



25)

Which of the following is NOT one of the three basic types of fish feeding?

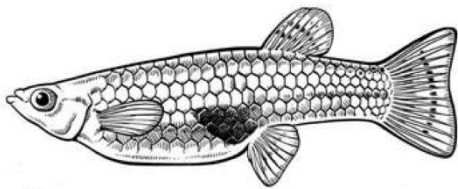
- a. Ram feeding
- b. Suction feeding
- c. Manipulation (biting, scraping)
- *d. Sensory feeding



- 26) Schooling fish like Herring are known to be suction feeders.
a. True
*b. False



- 27) Piranha's have one of the strongest bites of all fish.
*a. True
b. False



- 28) Fish with an upward oriented mouth are called?
a. Subterminal
*b. Superior
c. Dorsal
d. Terminal

- 29) Fish with densely packed, thin, and long gill rakers are probably eating other fish.
a. True
*b. False



- 30) Like human beings, fish need proteins, carbohydrates, and lipids.
*a. True

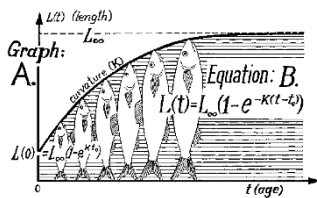
b. False

31) What is the term associated with the break-down of molecules into smaller units to release energy.

- a. Anabolism
- *b. Catabolism
- c. Canabolism
- d. Enzymobolism

32) Indeterminate growth is when organisms will grow quickly to reach sexual maturity, and then growth will level off as organisms invest more energy into reproductive tissues.

- a. True
- *b. False



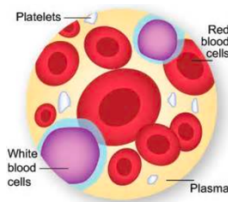
33)

If Anabolism is greater than Catabolism then a fish will grow.

- *a. True
- b. False

35) Which of the following is NOT a function of the Circulatory System in fish:

- a. Carrying oxygen to the cells
- *b. Anabolism
- c. Transport waste from body cells to excretory organs
- d. Transport nutrients from digestive system to the body cells



36)

Most fish have an open circulatory system, with blood in hemolymph sinuses surrounding the organs.

- a. True
- *b. False



37)

Fish have two basic blood cell types, they are Erythrocytes and Leukocytes.

- *a. True
- b. False

38) The number of Red Blood Cells in a fish can change.

- *a. True
- b. False

39) What is the name of the blood pigment that carries oxygen in fish circulation?

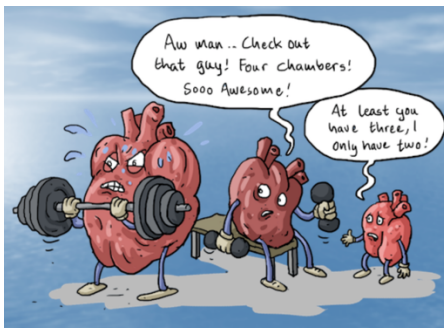
- *a. Hemoglobin
- b. Hemocyanin
- c. Tetroglobin
- d. Cyanoglobin

40) An increase in water temperature will likely result in INCREASED oxygen affinity.

- a. True
- *b. False

41) In fish circulation, the "Root Effect" decreases the capacity for blood to bind oxygen.

- *a. True
- b. False



42) How many chambers are most fish hearts?

- a. 1
- *b. 2
- c. 3
- d. 4

42. What is the term associated with the measure of the affinity of blood for oxygen at 50% saturation

- a. S50
- b. R50
- *c. P50
- d. H50

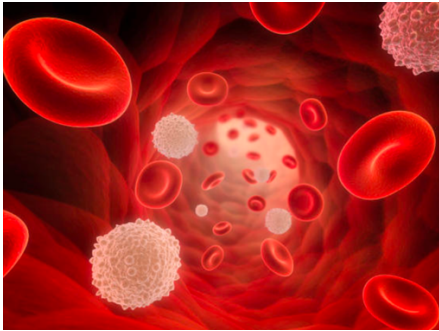
43) Each hemoglobin molecule has the ability to bind how many oxygen molecules?

- a. 3
- *b. 4
- c. 10

d. 25

44) As oxygenated blood circulates to the tissues it's the Carbon Dioxide (CO₂) that drives the oxygen off of the hemoglobin.

- *a. True
- b. False



45) White Blood Cells main purpose in fish is to carry oxygen to the tissues.

- a. True
- *b. False

46) One the challenges that fish face that “drink” freshwater is the dilution of important solutes.

- *a. True
- b. False

47) Saltwater fish gain freshwater by drinking lots of saltwater and filtering the salt with specialized ducts.

- *a. True
- b. False

48) Which element makes up most (55%) of the salt in saltwater?

- a. Calcium
- b. Potassium
- *c. Chloride
- d. Magnesium

49) Swim bladders are the primary site of ion excretion in fish.

- a. True
- *b. False

50) Crocodile Icefish have more hemoglobin than most Teleosts because they live in extremely cold water.

- a. True
- *b. False