CHORDATES, VERTEBRATES, & BONY FISH QUESTIONS **NAME** _____

Chapter 40 pp 788-790; Chapter 41 pp799-812

VEIN	CONUS ARTERIOSUS	ARTERY	CAPILLARY	OPERCULUM
SINUS VENOSUS	VENTRICLE	ATRIUM	VILLI	SPAWNING
URINIARY BLADDER	GALL BLADDER	SWIM BLADDER		

_____ plate that opens at the rear and which covers and protects the gills

_____ Fingerlike extensions inside the intestine to increase surface area for greater nutrient absorption

_____ A blood vessel that carries blood away from the heart to the body organs

_____ A blood vessel that carries blood returning to the heart from the body

_____ The smallest blood vessel which connects arteries and veins and which is the site where exchange of gases, nitrogen waste, and nutrients occurs

_____ Storage sac that holds urine waiting to be released

_____ Storage sac that holds gases obtained from the bloodstream that enables the fish to float or sink in the water

_____ Storage sac that holds bile made by the liver and used in the intestine to breakdown fat in food

_____ Anterior chamber of the heart of a fish that receives blood from the sinus venosus and sends it to the ventricle

_____ Collecting space that receives deoxygenated (LOW OXYGEN) blood returning to the heart from the body organs

_____ Lower, most muscular chamber of the heart which pumps the blood

_____ Exit space that smoothes the flow of blood leaving the heart

_____ Reproductive behavior including nest building, and migration to lay eggs seen in some fish

MULTIPLE CHOICE. Circle ALL that are TRUE.
There may be MORE THAN ONE correct answer.

ALL CHORDATES share the following characteristic(s) at some point in their life.

- **A. a dorsal nerve cord**
- **B. pharyngeal pouches**
- **C. a post anal tail**
- **D. notochord**

VERTEBRATES share the all of the characteristics of CHORDATES PLUS the following characteristic(s) at some point in their life.

- **A. a dorsal nerve cord and a ventral heart**
- **B. a ventral nerve cord and a dorsal heart**
- **C. endoskeleton made of bone**
- **D. vertebrae surrounding their nerve cord**
- **E. cranium or skull**

BONY FISH share all the characteristics of CHORDATES and VERTEBRATES PLUS the following characteristic(s).

- **A. scales**
- **B. fins**
- **C. endoskeleton made of bone**
- **D. 3 chamber heart**
- **E. lungs or a swim bladder**

In most vertebrates the notochord disappears as the _____ develops in embryos.

- **A. post anal tail**
- **B. head**
- **C. vertebral column or backbone**
- **D. ventral nerve cord**

The scales in a fish function to _____

- **A. absorb salt from the water**
- **B. provide protection**
- **C. help reduce water resistance**
- **D. excrete nitrogen waste**

Which of the following are functions of the gills in a fish?

- **A. gas exchange**
- **B. release nitrogen waste as ammonia**
- **C. regulate the concentration of ions (osmoregulation)**
- **D. absorb nutrients**

In a fish the blood leaving the CONUS ARTERIOSUS of the heart goes next to the _____.

- **A. kidneys**
- **B. gills**
- **C. brain**
- **D. muscles**

Fish gills are efficient organs for gas exchange because they _____.

- **A. have LITTLE surface area**
- **B. operate on the principle of counter current flow**
- **C. have NO other functions than gas exchange**
- **D. transport OXYGEN OUT of the body at the same time they transport CARBON DIOXIDE IN**

In a fish which TWO organs help maintain the balance between ions and water in the body (OSMOREGULATION) ?

- **A. heart and lungs**
- **B. liver and pancreas**
- **C. pancreas and gall bladder**
- **D. gills and kidneys**

Which TWO organs are responsible for making digestive enzymes in a fish?

- **A. liver and pancreas**
- **B. digestive gland and gall bladder**
- **C. pyloric caeca and pancreas**
- **D. gall bladder and vas deferens**

The portion of the brain that controls the functions of internal organs and acts as a relay station for sensory info is the _____.

- **A. cerebellum**
- **B. medulla oblongata**
- **C. optic tectum**
- **D. olfactory lobes**

Nitrogen waste in a fish is excreted in the form of _____

- **A. ammonia**
- **B. urea**
- **C. uric acid**
- **D. none of these; fish don't make nitrogen waste**

Gases enter the swim bladder _____.

- **A. directly from the gills when the fish inhales**
- **B. directly from the gills when the fish exhales**
- **C. from the bloodstream**
- **D. from food fermenting in the intestine**

Which of the following is true about the two kinds of bony fish?

- **A. Lobe-finned fish have fins supported by a series of bones.**
- **B. Ray-finned fish have fins containing flexible bony elements but not actual bones.**
- **C. Scientists believe that extinct lobe-finned fish are ancestors of amphibians.**
- **D. Scientists believe that extinct ray-finned fish are ancestors of amphibians.**
- **E. Perch is a lobe-finned fish.**

TRUE OR FALSE:

Circle T if the statement is true. Circle F if the statement is false.
CORRECT THE FALSE STATEMENTS TO MAKE THEM TRUE!

T F In a fish bile is stored in the urinary bladder.

T F The swim bladder stores urine.

T F The optic tectum helps coordinate muscles (motor output).

T F Fish are hermaphrodites with internal fertilization.

T F Fish have an open circulatory system.

T F "Olfactory" information has to do with the sense of hearing.

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Put the following in the correct order to show the path blood follows THROUGH THE HEART in a fish

SINUS VENOSUS CONUS ARTERIOSUS ATRIUM VENTRICLE

FROM BODY → _____ **→** _____ **→**
_____ **→** _____ **→ TO GILLS**