**Reptile Cardiovascular Anatomy and Physiology Questions**

Question:

Where is the cardiac pacemaker (initiation of electrical impulse) of the ophidian heart located?

1. Left atrium
2. Sinus venosus
3. Interventricular septum
4. Purkinje fibers
5. Cavum pulmonale

Answer: B

Question:

What are the three subchambers of the non-crocodilian ventricle?

Answer: Cavum pulmonale, cavum venosum, cavum arteriosum

Question:

What ligament anchors the heart to the pericardium in Testudines?

Answer: Gubernaculum cordis

Follow-up Question:

Which reptilian groups do not have a gubernaculum cordis?

Answer: Snakes, veranids (heart is free within pericardial sac)

Question:

What is the location of the crocodilian foramen of Panizza?

Answer: Between the left and right aorta.

Discussion Question:

What are some factors that influence the extent of cardiac shunting between pulmonary and systemic circulation in reptiles? What would be expected to occur with an increase in parasympathetic vs sympathetic tone?

Answers:

* Diving, apnea, metabolism/activity level, hibernation (chelonians), digestion, temperature, anesthesia (any increases in parasympathetic or sympathetic tone).
  + Increased parasympathetic tone (rest, diving, apnea) results in right to left shunting and decreased pulmonary perfusion.
  + Increased sympathetic tone results in left to right shunting and increases pulmonary perfusion.

Reptile Anatomy & Physiology 8/25/21 Questions

1. Which of the following reptiles lacks a urinary bladder?
   1. Loggerhead sea turtle (*Caretta caretta*)
   2. Tuatara (*Sphenodon punctalus*)
   3. American alligator (*Alligator mississippiensis*)
   4. Green iguana (*Iguana iguana*)
   5. Leopard gecko (*Eublepharis macularius*)
2. When compared to mammalian nephrons, reptilian nephrons lack which of the following:
   1. Glomerulus
   2. Long convoluted tubule
   3. Short intermediate segment
   4. Short distal tubule
   5. Loop of Henle

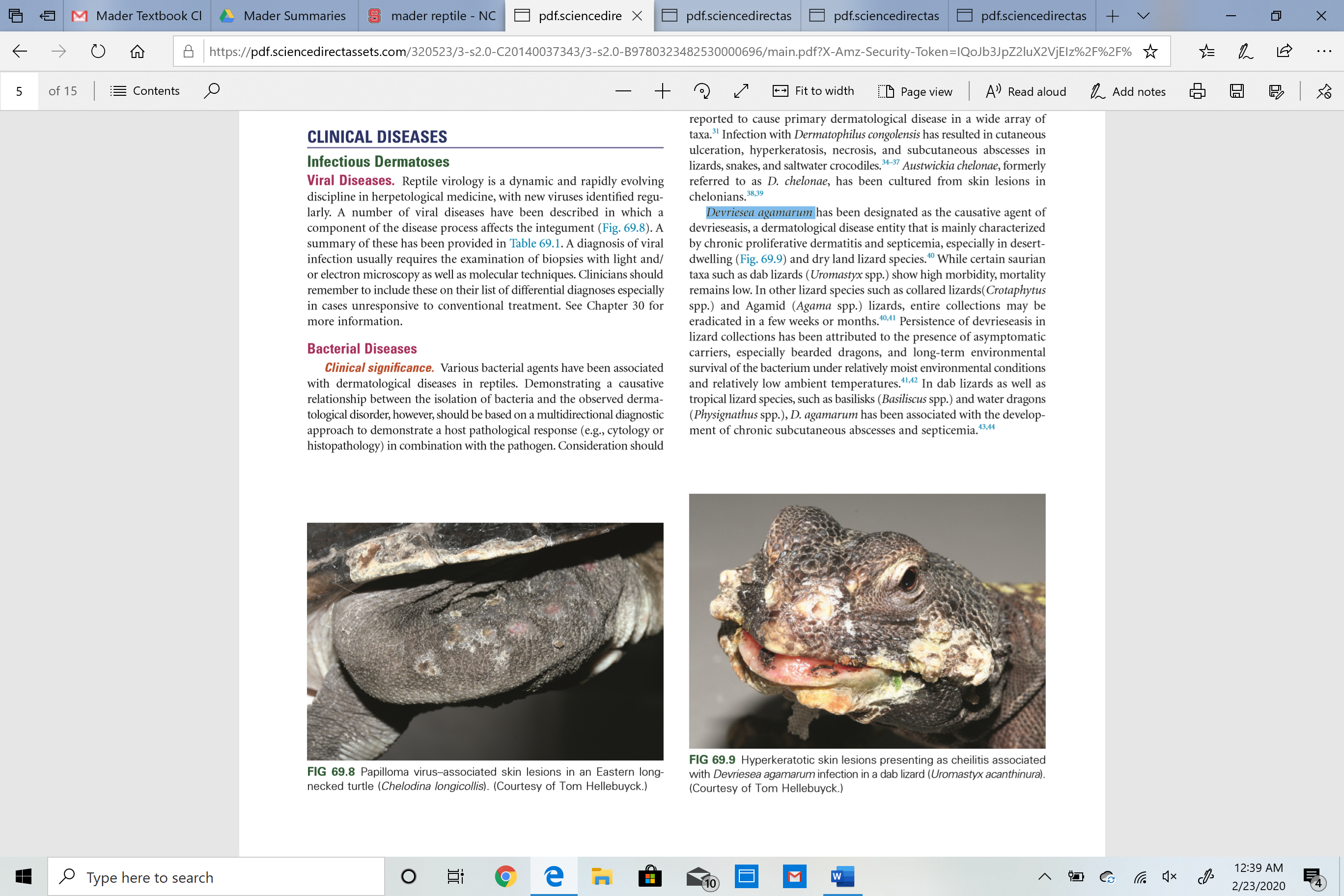
Which viral infection is associated with softening of the shell in juvenile herbivorous tortoises?

1. Picornavirus
2. Arenavirus
3. Paramyxovirus
4. Herpesvirus
5. Adenovirus

You observe characteristic dyskeratosis lesions on the carapace of a Texas tortoise (*Gopherus* *berlandieri*) on exam. What is the likely causative agent?

*Fusarium semitectum*

An owner has brought you the animal below to examine. One other uromastyx at home recently died and was found to have subcutaneous abscesses and septicemia. What is the likely causative agent? The owner also has a bearded dragon and a collared lizard that these uromastyx interacted with. What is the concern for the other lizards?



*Devriesea agamarum,* high mortality in collared lizards, bearded dragons can be asymptomatic carriers

In which reptile is the epididymis generally absent?

1. Snakes
2. Lizards
3. Crocodilians
4. Terrestrial chelonians
5. Aquatic chelonians

Answer: A

What is the primary factor in determining reproductive maturity in reptiles?

1. Maternal condition
2. Environmental temperature
3. Age
4. Body size
5. Presence of opposite sex

Answer D.

Which of the following reptiles is viviparous?

1. Gharial (*Gavialis gangeticus*)
2. Alligator snapping turtle (*Macrochelys temminckii*)
3. Common chuckwalla (*Sauromalus ater*)
4. Jackson’s chameleon (*Trioceros jacksonii*)
5. Sand boa (*Eryx jayakari*)

Answer: D. Jackson’s chameleon   
– All crocodilians and chelonians are oviparous, the majority of iguanids are oviparous, veiled and panther chameleons are oviparous but Jackson’s chameleon is viviparous, most boas are viviparous except sand boas and Calabar pythons (ground/burrowing boa). See table 80.1 in Mader Ch 80. Therio

Ovarian follicular development in the squamate starts with a small, clear to white follicle known as a \_\_\_\_\_\_\_\_\_\_ follicle. The accumulation of yolk within a maturing follicle is called . Mature follicles are ovulated and granulosa cells form a \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ which produces progesterone through the remaining gravid cycle. The ovulated egg is received by the , where fertilization occurs. Then it travels through the a-glandular region of the oviduct, the , followed by the glandular region, the , where albumen, shell membranes, and shell are laid down. The oviduct empties the egg into the \_\_\_\_\_\_\_\_ of the cloaca through the \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ prior to oviposition.

Ovarian follicular development in the squamate starts with a small, clear to white follicle known as a **previtellogenic** follicle. The accumulation of yolk within a maturing follicle is called **vittelogenesis**. Mature follicles are ovulated and granulosa cells form a **corpus luteum** which produces progesterone through the remaining gravid cycle. The ovulated egg is received by the **infundibulum**, where fertilization occurs. Then it travels through the a-glandular region of the oviduct, the **isthmus**, followed by the glandular region, the **uterus**, where albumen, shell membranes, and shell are laid down. The oviduct empties the egg into the **urodeum** of the cloaca through the **genital papilla** prior to oviposition.

Which orders of reptiles have complete tracheal rings?

Answer: Chelonians and crocodilians

Name the four routes of gas exchange utilized by reptiles

Answer: pulmonary, skin, gular, cloacal