CLASS- REPTILIA

GENERAL CHARACTERISTICS:

1. **Habitat & Habit:** Mostly **terrestrial** and a few such as tortoises, crocodiles etc., are **secondarily adapted to aquatic life.** Mostly **carnivorous** and **predatory; crawling** or **burrowing** and a few are **herbivorous.**

2. **Body form:** The body may be **short and broad** or **long and narrow**, or **cylindrical.**

3. **Body symmetry:** The body is **bilaterally symmetrical** and divisible into 4 regions, head, neck, trunk and tail.

4. **Appendages:** The trunk bears two pairs of **pentadactyle limbs** with **horny clawed digits.** The limbs are absent in few lizards and snakes.

5. **Exoskeleton:** The body is covered by **horny epidermal scales, shields**, **plates** and **scutes** to check loss of water. Snakes and lizards shed their skin periodically by the process called **moulting.** The skin is dry, cornified (tough) and non-glandular.

6. **Endoskeleton:** The endoskeleton is **bony.** The skull has a single occipital condyle (monocondylar) and the inter clavicle is 'T'- shaped.

7. **Body temperature:** Reptiles are **cold-blooded animals** or **poikilotherms.** Some forms raise their body temperature by exposure to sun. They hibernate during winter.

8. **Digestive system:** The alimentary canal is **complete** with openings, mouth and cloaca at extreme ends. The mouth is bounded by jaws which bear simple conical teeth. In **turtles' teeth** are replaced by **horny beaks**. The **tongue** may be **intact or bifid** and can be **protrusible or non-protrusible.**

9. **Respiratory system:** Respiration is **pulmonary.** Ribs help to expand and contract the body cavity for breathing.

10. **Circulatory system:** The heart is **3-chambered** (incompletely divided 4 chambers) with 2 auricles and partially divided ventricle. In **crocodiles,** the heart is **4-chambered.** RBCs are nucleated, oval and biconvex. The sinus venosus is reduced. There are only **3 aortic arches.**

11. **Nervous system:** The **cerebral hemispheres** are **smooth,** fairly **large** and the **cerebellum** is **small** and poorly developed. The **optic lobes** are **well developed.** There are **12 pairs of cranial nerves.**

12. **Excretory system:** The kidneys are **metanephric.** The **terrestrial forms** are **uricotelic** and **aquatic forms** are **ureotelic.**

13. **Sense organs:** Senses of **vision** and **smell** are **well developed**. Eyes mostly distinguish well only moving objects. **Snakes** have **Jacobson's organ** for **smelling**. Several reptiles use tongue as tactile organ as well. The majority of reptiles have poorly developed sense of hearing. They can only sense the vibrations of earth in most cases.

14. **Reproductive system:** Sexes are separate and exhibit **sexual dimorphism.** Males generally have a single or paired muscular copulatory organs.

15. **Development:** Fertilization is internal. Mostly **oviparous** and some are **ovo-viviparous or viviparous**. Eggs are large, macrolecithal and cleidoic (covered by hard or leathery shell). There is no metamorphosis hence development is direct. They are **amniotes** as extra embryonic membranes like amnion, allantois, yolksac and chorion are formed during development.

CLASSIFICATION:

I.   **Subclass – Anapsida** (Primitive reptiles- the roof of the skull lacks a temporary opening)

     Order 1: Chelonia:

     E.g. Chelone mydas (green turtle)- Marine

          Testudo (giant galapagos tortoise)-Terrestrial

Chelodine (long necked turtle)

Chrysemys (painted tortoise)

II.   **Subclass – Diapsida** (skull with 2 temporal openings)

Order 1: Rhyncocephalia: (Only one sole living species of New Zealand)

  E.g. Sphenodon punctatum (Tuatara lizard)

Order 2:   Squamata (2 Suborders)

Suborder i. Lacertelia – E.g. Calotes (gardenlizard)

                                      Draco (flying lizard)

                                      Chameleon

Suborder ii. Ophidia – E.g. Naja naja (common cobra)
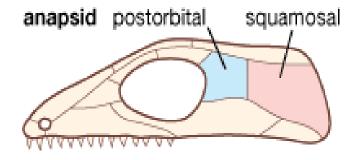
                                        Bungarus (krait)
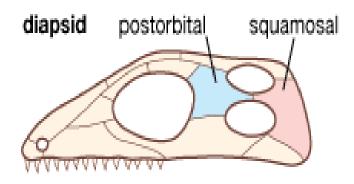
                                        Vipera russelli (Russell's viper)

                                        Python, etc.,
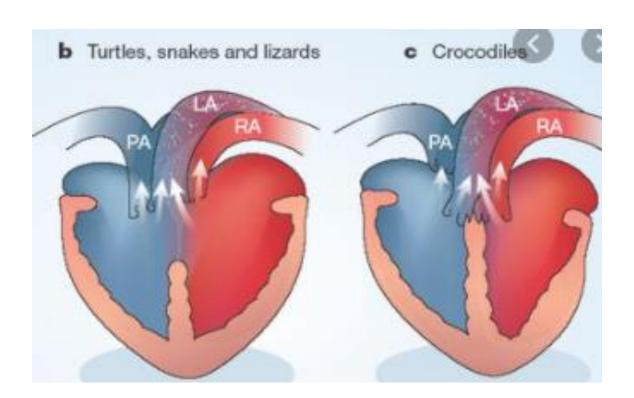
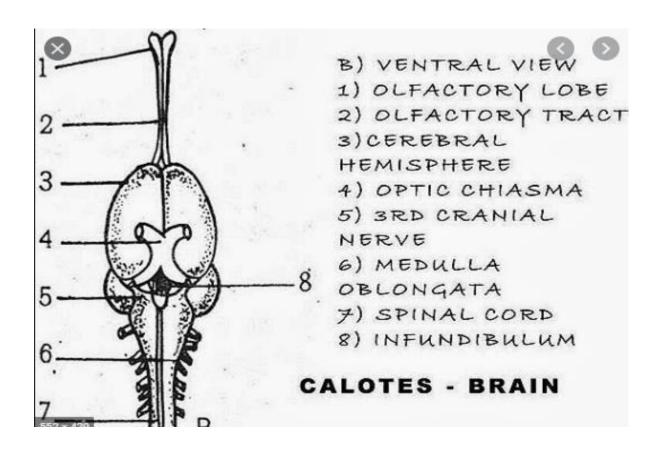**Order 3. Crocodilia – E.g.**   Crocodylus

                                      Alligator
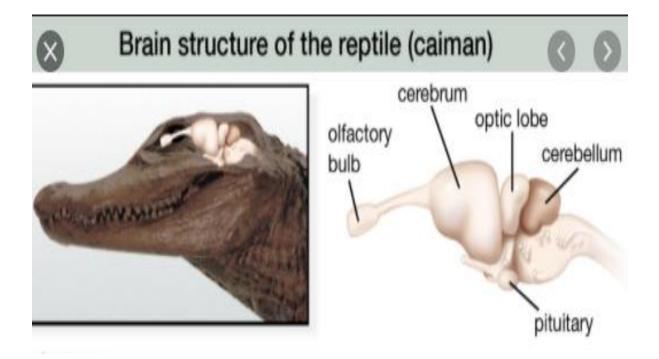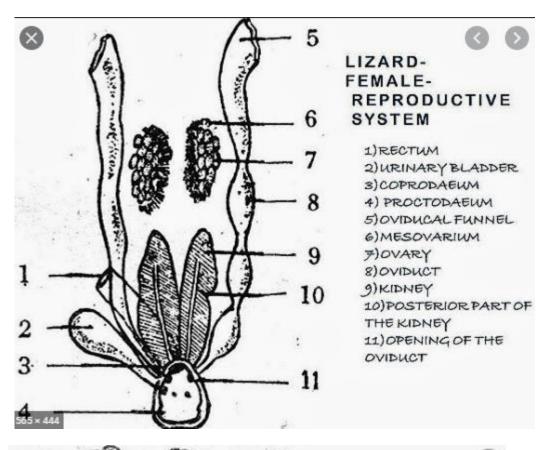
Sphenodon punctatum (Tuatara lizard)

anapsid postorbital squamosal

diapsid postorbital squamosal

b Turtles, snakes and lizards

LA
RA
PA

c Crocodiles

LA
RA
PA

B) VENTRAL VIEW
1) OLFACTORY LOBE
2) OLFACTORY TRACT
3) CEREBRAL HEMISPHERE
4) OPTIC CHIASMA
5) 3RD CRANIAL NERVE
6) MEDULLA OBLONGATA
7) SPINAL CORD
8) INFUNDIBULUM

CALOTES - BRAIN

Brain structure of the reptile (caiman)

olfactory bulb

cerebrum

optic lobe

cerebellum

pituitary

LIZARD-
FEMALE-
REPRODUCTIVE
SYSTEM

1) RECTUM
2) URINARY BLADDER
3) COPRODAEUM
4) PROCTODAEUM
5) OVIDUCAL FUNNEL
6) MESOVARIUM
7) OVARY
8) OVIDUCT
9) KIDNEY
10) POSTERIOR PART OF
THE KIDNEY
11) OPENING OF THE
OVIDUCT

1) TESTIS
2) VASA DEFERENS
3) URETER
4) POSTERIOR PART OF THE
KIDNEY
5) URINOGENITALDUCT
6) OPENING OF
URINOGENITAL DUCT
7) PROCTODAEUM
8) COPULATORY ORGAN

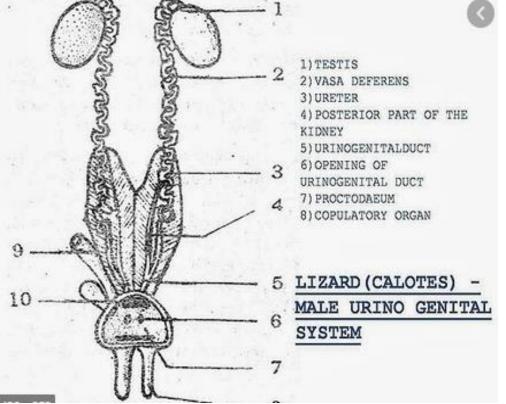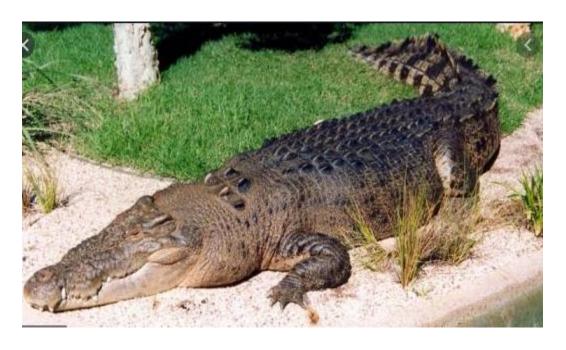LIZARD (CALOTES) -
MALE URINO GENITAL
SYSTEM

CHELONE MYDAS (Green turtle)

TESTUDO (Tortoise)

CROCODYLUS

ALLIGATOR

DRACO (Flying lizard)   **CALOTES** (Garden lizard)