

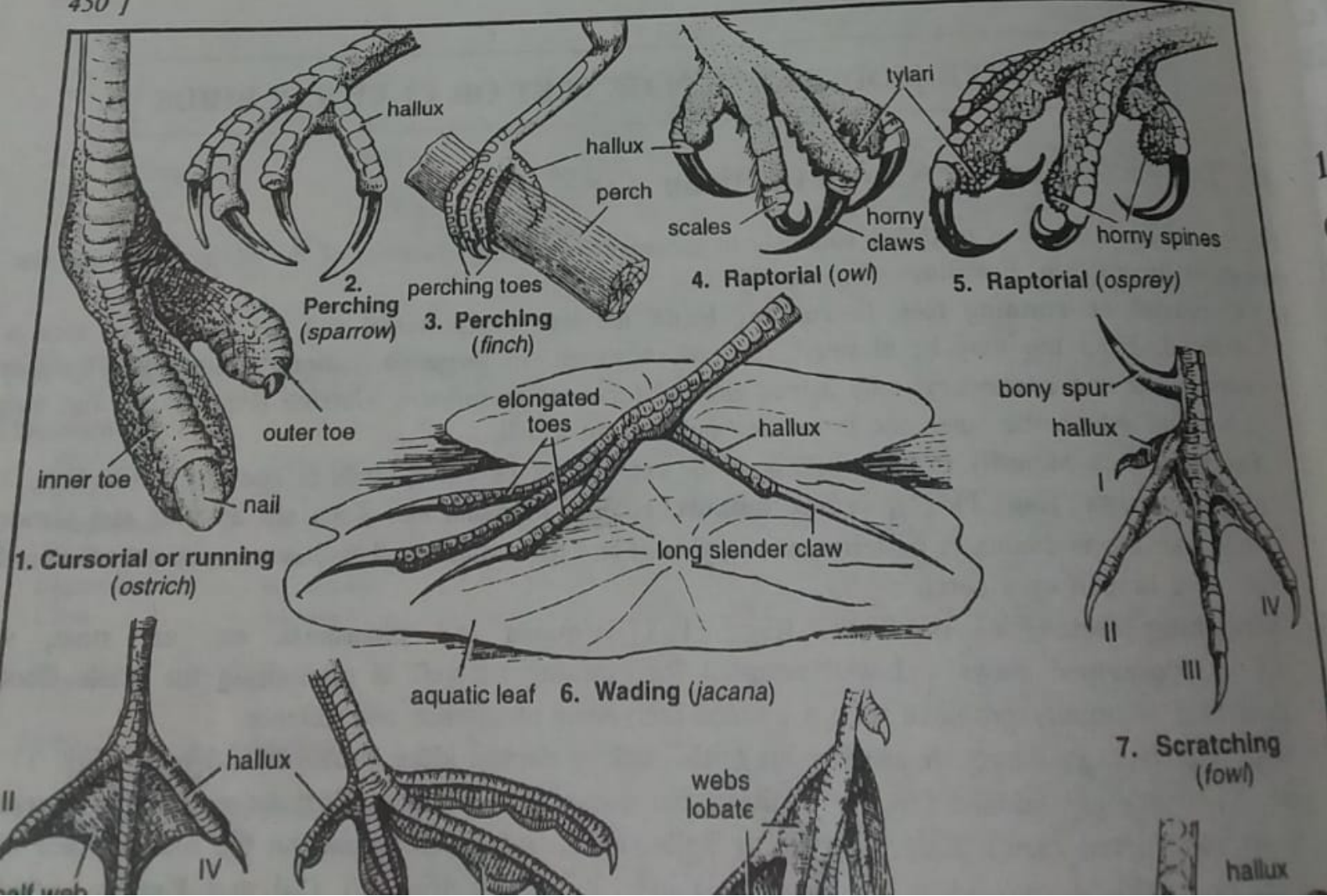
Test on (Laws of evolution & sides)

C. ADAPTIVE MODIFICATION OF FEET OR CLAWS IN BIRDS

17. Types of Feet or Claws in Birds

The feet of birds are also modified variously in accordance with the character of the environment and the manner of locomotion. For illustration see Fig. 11.

1. **Cursorial or running feet.** In **running birds**, the legs are powerful and the number of toes is reduced. Hind toe may be elevated, reduced or absent. In **bustards, coursers** and **ratites** such as **emu, rhea** and **cassowary**, only 3 toes directed forwards are present. **Ostrich** [Fig. 11 (1)] has only 2 toes, of which the outer one is smaller and without a nail.
2. **Perching feet.** Majority of birds belong to the category of **perching birds** or such as **finche** [Fig. 11 (3)], **sparrows**, [Fig. 11 (2)] **crows, bulbuls, robins, mynahs**, etc. Toes are anterior and slender, while one toe or hallux is posterior, strongly built and apposable, so that they can securely fasten the foot to a branch or a perch.
3. **Scratching feet.** Feet of **fowls**, [Fig. 11 (7)] **quails** and **pheasants**, etc. are stout, with strongly-developed claws and well **adapted for running** as well as **scratching** the earth. Foot of male bird is usually provided with a pointed bony spur of offence and defence.
4. **Raptorial feet.** Predatory or carnivorous birds, such as **eagles, kites, vultures** and **owls**, [Fig. 11 (4)] etc. have strongly taloned feet for **striking** and **grasping** their prey. Toes have strongly developed, sharp and curved claws. Large and fleshy bulbs, called **tylari**, are found on the undersurface of the toes, especially developed in the **sparrow-hawk**. In **osprey** [Fig. 11 (5)] and **Ketupa**, tylari are absent but horny spines are present, which help in gripping slippery preys such as fish.
5. **Wading feet.** Legs and toes are exceptionally long and slender in **wading or marshy** birds such as **herons**, [Fig. 11 (11)] **snipes, jacana**, [Fig. 11 (6)] **lapwing**, etc. These serve to **walk over** aquatic vegetation or marshes. Web is absent or feebly developed.
6. **Swimming feet.** In **swimming birds**, the toes are **webbed**, partially or completely. In diving birds, like **coots** [Fig. 11 (9)] and **grebes**, [Fig. 11 (10)] the web is lobate and the toes are free. In swimming and paddling birds, such as **ducks** [Fig. 11 (12)] and **teals, avocet** [Fig. 11 (8)] only the anterior 3 toes are united in a web. In **pelican** and **cormorant** [Fig. 11 (13)] all the 4 toes are enclosed in the web.
7. **Climbing feet.** In **parrots** [Fig. 11 (17)] and **woodpeckers** [Fig. 11 (14)] the feet are used as **grasping organs** and especially adapted for **climbing vertical** surfaces. Second and third toes point in front, while the first and the fourth toes point backwards.
8. **Clinging feet.** In **swifts, martinets** [Fig. 11 (15)] **king fisher** [Fig. 11 (16)] and **humming birds**, all the 4 toes point forwards and serve to cling to steep faces of cliffs or under caves of houses, etc.



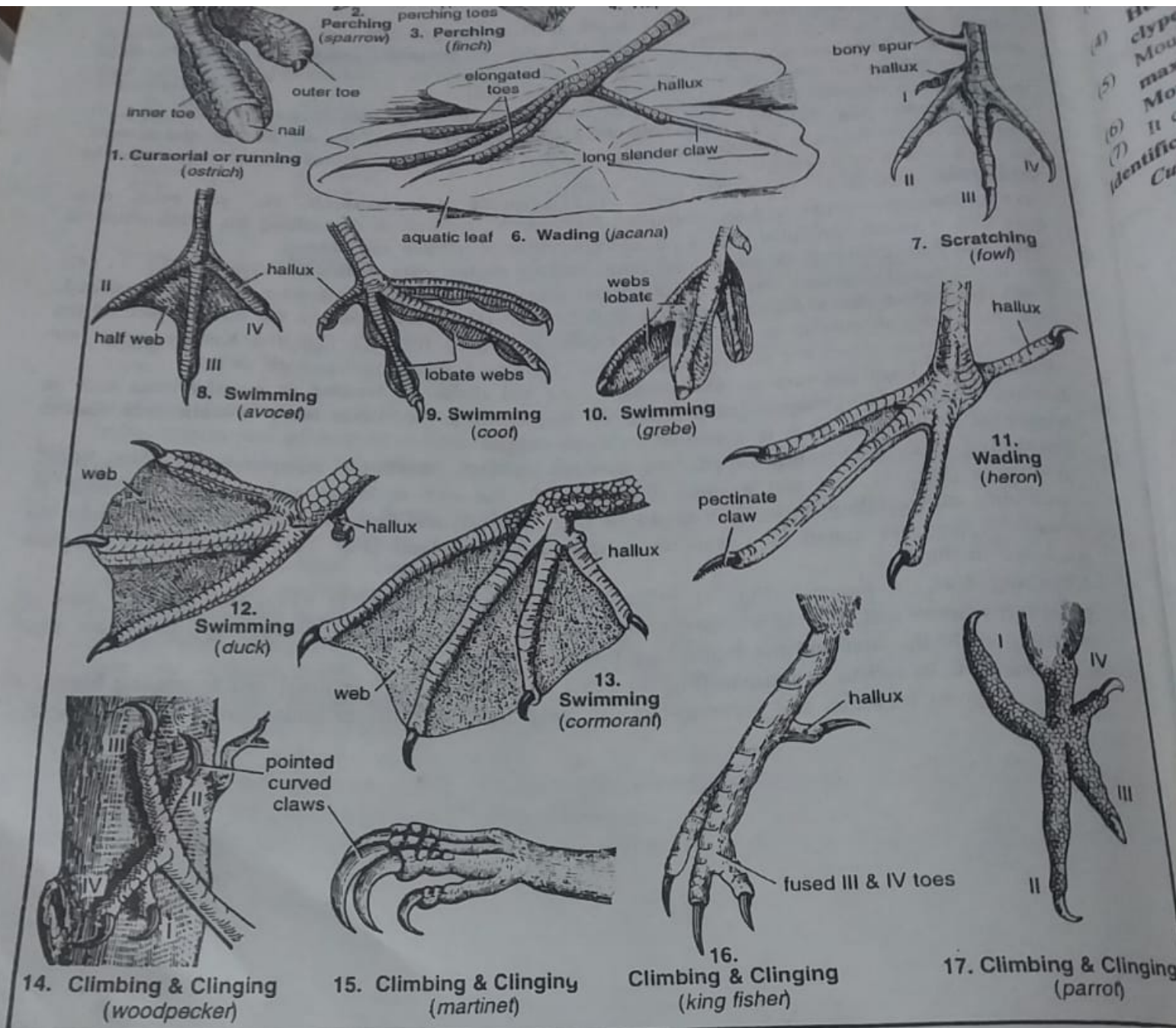


Fig. 11. Types of Feet or Claws in Birds.

(Z-21)