

Applied Biology

BIO-ZOOLOGY

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Lesson-6. APPLIED BIOLOGY ONE MARK.

I. Common name, zoological names, other names, special names

1. BOS - Genus. → Ruminant quadrupeds.

	Dr. N.S
1. Humped cattle → <u>Bos indicus</u>	11. <u>Tilapia</u>
2. Without any hump → <u>Bos taurus</u>	<u>Tilapi kendai</u> :- <u>Oreochromis striatus</u>
3. Buffalo → <u>Bos bubalis</u>	12. <u>Murrets / Snake heads</u> - <u>Viral</u> striped snake head → <u>Channa striatus</u>
4. Sindhi / Red sindhi / Red Karachi	13. <u>Sports fishes</u> : cold-water fishes.
5. Gir / Kathiawadi / Surti.	ⓐ <u>Trout</u> (order Salmoniforms)
6. Kangayam / Kanganad / Kange.	ⓑ <u>Rainbow trout</u> → <u>Salmo gairdneri</u>
7. carps - kendai	14. <u>Marine fishes</u> .
ⓐ <u>Catla</u> - <u>Catla catla</u>	ⓐ <u>Sea boss / Cock up / Koduvu</u> ↳ <u>Lateo calcanifer</u>
ⓑ <u>Rohu</u> - <u>Labeo rohita</u>	ⓑ <u>Madavai / Grey mullet</u> ↳ <u>Mugil cephalus</u>
ⓒ <u>Mrigal</u> - <u>Cirrhina mrigala</u>	ⓒ <u>Milk fish</u> → <u>Chanos chanos</u>
8. Common carp → <u>Cyprinus carpio</u> (Exotic Chinese)	15. <u>Giant snake head</u> → <u>Channa marulius</u>
9. Minor carp	16. <u>Common murrel / striped snake head</u> <u>Channa striatus</u>
↳ <u>Bata</u> → <u>Labeo bata</u> .	17. <u>Grey mullet - Madavai</u>
10. <u>Cat fishes</u> - <u>Keluthi</u>	18. <u>Pearl spot</u> → <u>Karimeen</u>
ⓐ <u>Freshwater shark</u> - <u>Wallago attu</u> (Khalai)	
ⓑ <u>Cat fish</u> → <u>Mystus aor</u>	
ⓒ <u>Magur</u> → <u>Clarias batrachus</u>	
10-a. <u>Sea boss</u> → <u>Koduvu</u> .	

19.	<u>Cartilaginous fish</u> :- shark, skates.
20	<u>Bony fishes</u> :
	a) <u>Vavva</u> → pomfrets.
	b) <u>Kanangaluthi</u> ↳ <u>Indian Mackerel</u> .
	c) <u>vanjiram / neeimeen</u> ↳ <u>Seer fish</u> .
	d) <u>para meen</u> → <u>Carangids</u>
	e) <u>Keluthi</u> → <u>cat fishes</u>
	f) <u>Maaku meen</u> → <u>flat fishes</u>
	g) <u>Maathi meen</u> → <u>sardines</u>

Dr. N.S
<u>Some important points</u>
1. <u>Milk</u> - protein supplement
2. <u>26</u> cattle spe, <u>6</u> breeds of buffaloes
3. Intelligent facial expression → <u>Sindhi</u> (Animals are docile and quiet.)
4. <u>Sindhi</u> breed show high degree of <u>resistant to heat</u> and <u>ticks</u> . Most economical milk producers.
5. <u>Gir</u> : Well built body with clear cut lines. Majestic appearance. leaf like ears.

6. on cole: white in colour with grey marking. erect hump. Stumpy horns grow outwards and inwards.
7. Kangayam: Body white / grey with black markings. Short head and prominent forehead. Bulls → Excellent type for hard work.
8. Hallikar → Hassan, Tumkur - home places of this breed. Body dark grey / black. long face with small ears.
9. Exotic breeds introduced in India about 90 yrs back
10. Jersey: a) oldest dairy breed. b) adaptable to wide range of climatic conditions and heat. c) with good udders with large teats. d) Milk → yellow in colour because of high carotene content e) Bulls are vicious. f) cross breeding of Jersey and indigenous breeds Sindhi and Harijani - produced excellent cross breeds.
- Dr. N.S
11. Anthrax: caused by β anthracis / Bacillus anthracis.
 a) High temperature (41 - 41.5°C) b) Blood discharges from natural openings c) Animal dies in 10-36 hours.
Control: Spore vaccine at 6 months of age.
12. Cow pox: Retarded rumination, Swelling of udder and teats, mastitis and loss of milk.
Prevention giving sloppy feed for swallowing and digestion giving saline laxatives and diuretics.
13. Milk fever → inability of the animal to assimilate calcium from the feed.
 - High pulse rate, below normal temperature.
 Staggering.
 - Feeding jaggery with lime water
14. Constipation - due to over eating of coarse fibrous roughage.
Control - plenty of drinking water with jaggery / salt
 evacuating the rectum by giving warm soap water enema. Dr. N.S
15. Out breeding → The individuals involved do not have a common ancestor in the preceding 4-6 generations
16. Mating of less closely related / unrelated animals → out breeding
17. Mating of animals of different breeds → Cross breeding.
18. Artificial insemination helps to eliminate the need for maintenance of herd sire

Poultry: alone

1. chickens occupy 90% of the total poultry.
2. American breed of fowls characterized by yellow feet, red ear lobes and lay brown shelled eggs.
3. Plymouth rock → oldest and most popular breed of America.
 plumage → male grayish white. female → darker.
 female → black spots on the shanks.
 white plymouth rock → broiler production.
4. Asiatic breeds → large body, heavy bones, feathered shanks, red ear lobes, yellow skin.

Brahma: → Massive body with heavy bones.
pea comb is one of the breed character.

Light brahma →

- a) Light grey - white
- b) Black hackle

Dark Brahma

- a) Light black to steel grey
- b) Greenish hackle.

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5. English breeds :- originated from England.
character: white plumage and pink coloured ear lobes.
 Brown shelled eggs.

6. Mediterranean breeds: a) Light bodied with non feathered shanks.
 b) Leghorn, Ancona originated from Italy
 c) Minorca originated from Spain
 d) Lay white shelled eggs and they are non-sitters

7. Leghorn: a) white leghorn → most popular and commercial breed of India. b) plumage → white / brown / black.
 c) Thriving well in dry areas. d) Mature early and they begin to lay eggs at the age of 5-6 months.

8. Indigenous breeds: a) common country hen of India → Desi
 b) Desi → Best mother of hatching.

c) Aseel → i) noted for its pugnacity ii) not good egg layers, but excellent sitters. iii) Abundant in Andrapradesh

d) chittagong: i) largely found in west Bengal
 ii) plumage → golden / light yellow. iii) long beak - yellow ear lobes → red.
 iv) good egg layers and are delicious

2) Karaknath: i) fowl with black flesh. ii) Bred by tribals.
 iii) seen in Madhya Pradesh. iv) plumage → silver / gold / bluish black. comb → purple.

F) Busta: i) medium sized bird ii) Gujarat, Maharashtra.
 iii) high feathered.

Farming methods

1. Dark brown shelled eggs hatch earlier than light-brown shelled eggs.
2. The fully formed bird emerges out of egg after a hatching period of 21-22 days
3. Brooding is the care and management of young chickens for four - six weeks.
4. The hatched ~~eggs~~ chicks are kept inside the incubator about 36 hours
5. The optimum temperature in the artificial brooder is 33°C (first 3 days), reduce 3°C each week till it reaches 21°C
6. Poor ventilation results in the accumulation of CO₂, NH₃ and methane leads to microbial infection.
7. Floor space - 500 sq. cm
8. Litter bed 5-7.5 cm thick
9. Evenly distributed sunlight promotes proper growth of the birds and formation of vitamin-D
9. open poultry is popular in India
10. poultry and poultry products are highly perishable

Fishes

1. Fishes are highly nutritious sources of easily digestible proteins (Lysine, methionine), vitamin A, D
2. POLYUNSATURATED FATTY ACIDS - PUPA → Fish is the rich source. → Helpful in cholesterol regulation and promoting cardiac health.
3. Salt water / Marine fish farming → Mariculture.
4. Fish culture → Pisciculture.
5. The fishes proposed to be cultured together → polyculture.
6. NPK level → fish pond $18 : 10 : 4$
N P K.
7. If the organic carbon is less cow dung is applied ~~20~~ 2-3 tonnes/ hectare, poultry manure → 5000 kg/ha.
8. Water quality → Temp: 25-33°C, PH (6.5-9.0)
9. Artificial feed: 30-40% proteins, 5-10% fat, 50-60% Carbo-hydrates, less than 5% cellulose, 10% water.
10. Indian farmers give rice bran, oil cakes in powder form to major carps.
11. Carnivorous fishes (murrels, cat fishes) provided with trash fishes.
12. Adult fish → Daily supplementary feeding → 2% of its body weight.

Edible fishes of Tamil Nadu.

1. Carps belonging to the order Cypriniformes. They have no teeth, however pharyngeal teeth may be present.
2. Catla catla fast growing species among Indian carps.
3. Labeo rohita (Rohu)
 - i. Tastiest fish. Dorsal fin with 12-13 branched rays, full reddish scales. Identification feature. fairly fast growing.
4. Cirrhinus mrigala: Bright silvery body having golden tinge. identification mark.
5. Cat fishes (kalandai) air breathing / live-fishes. They can live without water for a long time. Body without scales.
 - ii. PREDATORY and CARNIVOROUS.
6. Murrels / Snake heads / vital: → Order - channiformes. air breathing. Suitable for culture in irrigation wells and shallow swamps.
 - channa marulius (Giant snake head)
 - Suitable for culture in ponds along with tilapia
 - C. striatus (Striped Snake head / Common murrel)
7. Tilapia: Order - Perciformes.
 - Oreochromis mossambicus (Tilapi kendantai - Tilapia)
 - Exotic fish introduced in India from East Coast of Africa. (1952). Maturity occurs even in 2 months.
 - ii. Female keeps the fertilized eggs guarded in its mouth.

Medical Lab Technique

1. The first usable binaural stethoscope was invented in 1855.
2. Stethoscope can indicate the fluid in lungs in case of pneumonia and pulmonary edema.
3. Sphygmus means pulse.
4. Normal BP :- 120/80 mmHg.
5. Counting chambers used to count RBC, WBC, platelets
Newbauer, Facichy, Rosenthal



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6. RBC diluting fluid \rightarrow Hayem's solution
 7. WBC diluting fluid \rightarrow Turk's / Toluidin solution.
 8. Venous blood is used in blood cell counting.
 9. An increase in WBC count for a transient period \rightarrow Bacterial infection.
 10. For testing glucose urine is collected 2-3 hours after food.
 11. Sugars generally known as reducing substance convert blue cupric sulphate to Red cuprous oxide.
 12. Surplus glucose appear in urine \rightarrow glucosuria.
 13. Benedict's test is the qualitative test to indicate the presence/absence of sugars.
 14. Thin layer chromatography \rightarrow superior method for identification of urine sugars.
 15. Digital glucometer \rightarrow usage for instantaneous determination of blood glucose levels.

ECG:

- a) The waves of ECG due to depolarization and not due to contraction of heart.
- b) Electrical activity of the heart first recorded by Waller (1887) with a capillary electrometer.
- c) Einthoven who recorded ECG with a string galvanometer. (Nobel Prize - 1924)

Remaining ^{one mark} notes of ECG, CT, Endoscopy, Artificial pacemaker, and auto analyser -
refer book