Male Reproductive System

- Testes: Pair of Yellowish

upper part of kidneys by

mesorchium.

near kidneys.

- Tadpole

system.

Blood.

red in color

ovoid Structures, adheres to

Female Reproductive System

- A pair of ovories situated

No functional connection

Fertilization

External in water.

Development involves a

Adult.

larval Stage, tadpole.

Circulatory System

-ventricle opens into conus

arteriosus on ventral side

-Blood from heart is carried

to all body parts by arterial

Blood Vascular System

-Heart + Blood vessels +

-RBCs are nucleated and

Lymphatic System

-LYMPH + LYMPH CHANNEL

+ LYMPh Nodes.

-LYMPH HAS NO RBC'S

-Heart: 3-Chambered.

2 Artia + 1 Ventricle.

with kidneys by mesorchium.

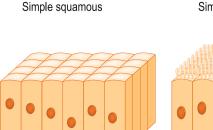
Rana tigrana

Cold-blooded

EPITHELIAL CELLS

STRUCTURAL ORGANIZATION IN ANIMALS

Simple cuboidal



Ciliated columnar

Reproductive System (Hermaphrodite) Male- 2pairs of testes (10th and 11th). -Vas differentia upto 18th Segment.

Female- 1 Pair of ovories at 12th intersegmental Septa of and 13th. -Ovorian funnels beneath ovories. -Oviduct opens on 14th Segment as female genital pore.

REPRODUCTIVE SYSTEM

OF EARTHWORM

-ONE Pair of accessory gland in

-4 pairs of Spermathecae in 6th

17th and 19th Segments.

- 9th Segments.

Common indian varieties

EXCRETORY SYSTEM Excretory organ - Nephridia

-Integumentary - attached to the living of body wall from 3rd to end.

-Septal - present on both Sides of intersegmental Septa of 15th to end.

segments. -Nephridia regulate volume and composition of

body fluids.

-Pharyngeal as-3 paired tufts in 4th - 6th

-They Start as a funnel to connects excess fluid from coelomic chamber.

-Deliver body waste to body to body wall Surface through pore.

Sensory System

No eyes but sensitive to light & touch.

Chemoreceptors 7 for response to chemical Stimuli.

Sense organs located on anterior Part of body

Digestive system

1- 3 Segment -> Terminal mouth opens in buccal

Muscular Pharynx → 5-7 Segment.

Oesophagus → 8-9 segment.

Gizzard - helps in grinding soil and decaying leaves. Stomach → 9-14 Segment - calciferous

gland neutralizes humic acid in rumus

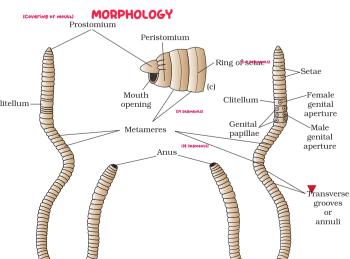
intestine -> 15- last segment - Open into ANUS.

typhlosole -> Characterised by presence of internal medial fold of dorsal

-Thorax — MeSothorax (covered by hard chitinous exoskeleton made of

-Head has compound eye. Ocellus and

-Has mosaic vision for nocturnal vision



Pain of teste<mark>s</mark> at 4th-6th abdominal -Genital Pouch has -1) Anus

2) Male genital Pore

3)Collateral glands

3) Phallomere -Anal Style Present

Female Reproductive System -Pain of ovories at 2th-6th abdominal

segment. -Genital Pouch has -1)female gonopore 2)Spermathecal pores

Anal Style absent.

Periplaneta Americano

octurnal omnivores

Respiratory System

Trachea, divided into tracheoles -Tracheoles carry oxygen to all body

-Trachea opens via spiracles.

Vascular system

OPEN LYPE -Blood.called Haemolymph has colorless plasma and haemocytes.

-Alary muscles help in circulation. -Heart is dorsal and 13 chambered.

Alimentary canal

-Divided into - Foregut, midgut and hindgut.

-Mouth opens into → Pharynx → Desophagus -> Crop (food Storing

region) -> Gizzard. where grinding of food occurs -> Hepatic Caeca-> → Malpighian tubules → Hindgut.

-Hindgut is divided into ileum. Colon and rectum.

-Rectum opens out through anus.

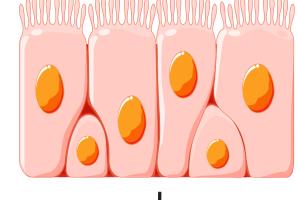




antennae.

.and- Buccal cavity Skin and Lungs as pulmonary respiratory organs.

water- Skin acts as



Animal tissue

for Secretion.

Unicellular - goblet cells of alimentary canal

Multicellular - Salivary glands

Exocrine - Sweat & Sebaceous glands

2) CONNECTIVE TISSUE

- Regular

- Irregular

3) NEURAL TISSUE

Diagram of Neuron

Smooth Muscle Tissue

Schwann Cell

ENDOCTINE - PITUITARY, THYMUS

- Areolar

- Adipose

1) Epithelial Tissue

i) Glandular: Columnar and

cuboidal are specialized and

- LYMPh

- Blood

- Bones

- Cartilage

Axon Terminal

4) MUSCULAR TISSUE

Carcliac -Long & cylindrical

-Uninucleate

-Presentin Heart

Autonomic

Sympathetic

Parasympathetic

Skeletal/ Striated -long & cylindrical

Smooth / Unstriated -walls of viscer-

Present in-limbs, tongue & Pharynx

-Spindle Shaped with Pointed end

al organ

Simple columnar Cell Junction

Tight- check the flow between cells.

GAP- helps in between cells' communication. Adhering-cements the cells together.

ii) Simple: made of Single layer of cells.

function is exchange of material, filtration (

little absorption. - lining cavity organs like heart. lungs etc.

Cuboidal

- tubules and ducts

of glands & surface

- Gastrointestinal

Columnar

- Secretion &

Ciliated

absorption.

- Absorption &

secretion.

of ovary.

tract.

Columnar

cavity.

iii) Compound

Squamous

Protection against abrasion.

- EPidermis of Skin. hair & oral

- Protection & Secretion. - Epiglottis & mammary

Cuboidal

· help in mechanical & chemical

- Sweat glands, and cand & female urethra.

PSuedo - Stratified

Movement of mucous & egg. Respiration tract & fallopian tube.

- Protection & moveyment - Salivary glands.trackea. and male urethra.

LOREM IPSUM





Cardiac muscle tissue

Nervous system

Represent by Ganglia.

Ganglia arranged on ventral paired werve cord.

- The bifurcated nerve cord joins the cerebral ganglia dorsally to from nerve ring.

- cerebral ganglia commands muscular responses.

Respiratory System

No Specialized breathing organ System.

Exchange occurs via moist body surface into blood Stream.

CLOSED CIRCULATORY SYSTEM

- has blood vessels. capillaries and heart.

· contraction helps blood circulation in one direction.

- Smaller blood vessels supply the gut, nerve cord & body wall.

- Blood glands in 4th 5th & 6th Segment produce blood cells & hems globin.



Digestive System -Short alimentary canal

- + digestive glands. -Mouth → Buccal cavity -Stomach - Intestine rectum + cloaca.
- -Digested food is absorbed within intestine and undigested solid waste is removed via cloaca.

Respiratory System

cutaneous respiratory

1) fore brain

Central

Spiral cord

- Brain

Skeletal Muscle Tissue

2) Mid brain

Nervous System

Peripheral

Cravial

nerves

Spiral

nerves

-Brain- present in cranium, has 3 parts:-

3) Hind brain