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PAPER HUMAN PHYSIOLOGY

BS RADIOLOGY

Question No. 1

PITUITARY GLAND:-

The pituitary gland is a small pea-sized gland that plays a major role in regulating vital body functions.

It is referred to as the body's "master gland" because it controls the activity of most other hormone-secreting glands.

Several hormones produced by the hypothalamus are stored here and released into the blood.

It has two lobe

anterior lobe.

posterior lobe.

1. ANTERIOR LOBE:-

The anterior pituitary gland is the front lobe of the pituitary gland, which is found at the floor of the brain called the sellaturica.

Some hormones are released from anterior lobe.

1. GROWTH HORMONE:-

Its release is stimulated by Growth hormone stimulating hormone, suppressed by Growth hormone release inhibiting hormone. Secreted by hypothalamus.

Secretion is also stimulated by hypoglycemia, exercise and anxiety.

Secretion is greater during night sleep than day.

Stimulating of growth of bones cartilage and

Comective tissue.

- Increase Calcium absorption.

Decrease Sodium, potassium, phosphorous.

DISEASES RELATED TO GROWTH HORMONE.

Gigantism:-

It is due to over production of Growth hormone.

Tall stature.
Large Hand and feet.

Dwarfism:-

Deficiency of GH Secretion.

Small genitalia
Shortness of Stature.
Delicate extremities.

2. THYROID STIMULATING HORMONE:-

The release of this hormone is Stimulated by the thyrotrophin releasing hormone from

hypothalamus.

It stimulate the growth and activity of thyroid gland.

Thyroid gland secretes and activity ~~of thyroid gland~~. the thyroxine (T_4) and Triiodothyronine (T_3)

when blood level of thyroid hormone is high. Secretion of TSH is reduced.

3. ADRENOCORTICOTROPIC HORMONE

Adrenocorticotropic hormone Secretion is stimulated by the release of corticotrophin releasing hormone from hypothalamus.

ACTH level is highest at midday and lowest at mid night.

It stimulates the synthesis and secretion of adrenal Cortical hormone.

Its Secretion is Suppressed

when blood level of ACTH rises.

4. **PROLACTIN:-**

This hormone is secreted during pregnancy for lactation.

It is stimulated by prolactin releasing hormone from hypothalamus

5. **FOLLICLE STIMULATING HORMONE:-**

Follicle stimulating hormone regulates the development, pubertal maturation and reprod processes of the body.

6. **LUTEINIZING HORMONE:-**

In females, an acute rise of LH triggers ovulation.

In males, It stimulates the production of testosterone.

2. **POSTERIOR LOBE:-**

It is formed from the nervous tissue and nerve cells, surrounding by supporting glial cells.

Two hormones release from posterior pituitary gland.

OXYTOXIN:-

It is also called anti stress hormone.

Oxytocin is produced in both males and females. but its main physiological roles are to take place in female.

Oxytocin involved in a number of important physiological action

Stimulates the contraction of the uterus.

Stimulates the contraction of the myoepithelial cells that eject milk from breast.

ANTI-DIURETIC HORMONE:-

Anti-Diuretic hormone / vasopressin

To retain water in the body.

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Question No. 2

Difference Between Appendicular And Axial Skeletion:-

Appendicular Skeleton	Axial Skeleton
The ~~axial~~ appendicular skeleton includes all the bones of the upper and lower limbs, plus the bones of the pectoral and pelvic Girdle.	The axial skeleton forms the verticel central axis of the body include all bones of of the head, neck chest and back.
Part of the skeleton of Vertebrates Consisting of the bones that support the appendages.	Part of the skeleton that Consists of the bones of the head and trunck of a Vertebrea
Consists of appendages	Central axis of the human

	~~Skele~~ Connected to the axial Skeleton.	Skeleton.
4	Composed of pectoral girdles, arms, forearms, hands, pelvis, legs, feet, and ankles.	Composed of skull ossicles of middle ear, vertebral Column Consisting of a total 80 bones, hyoid, ribcage, and Sternum.
5	Made up of 126 bones.	Made up of 80 bones.
6	Aid in the movement of the body.	Support the upright position and protects the internal organs.

Question No. 3

MUSCULAR TISSUE:-

Muscle tissue is Composed of Cells that have the special ability to Shorten or Contract in order to produce movement

of body parts. The tissue is highly cellular and is well supplied with blood vessels.

Muscular Cells are Called muscle fibres.

Every fibre Contain thousand of myofibrils.

Inside each myofibril there are many myofilaments that are made of two proteins. Actin and myosin.

The myofibrils are divided in subunits Called Sarcomeres.

TYPES OF MUSCLES:-

SKELETAL MUSCLE:-

long, Cylindrical, multinucleated Cells with peripherally placed nuclei.

Contraction is typically quick and vigorous and under voluntary Control.

used for locomotion, mastication, and phonation.

The skeletal muscles are also known as striated or voluntary.

CARDIAC MUSCLE:-

Cardiac muscle is only found in the heart.

elongated, branched cells with a single centrally placed nucleus and intercalated discs at the end.

Contraction is involuntry, vigorous and rhythmic.

SMOOTH MUSCLE:-

Possesses contractile machinery, but it is non striated.

Cells are fusiform with a central nucleus.

Contraction is involuntary, slow and long lasting.

Question No. 4

CYCLE OF BREATHING:-

The average respiratory rate is 12 to 15 breaths/minute.

Each breath consists of two phases.
inspiration
Expiration.

INSPIRATION:-

When the capacity of the thoracic cavity is increased by simultaneous contraction of the intercostal muscles and diaphram

The parietal pleura moves with the walls of the thorax and the diaphram.

This reduces the pressure in the pleural cavity to a level considerably lower than atmospheric pressure.

The visceral pleura follows the parietal pleura.

pulling the lungs with it.

This expands the lungs and the pressure with in the alveoli and in the air passages, drawing air into the lungs in attempt to equalize the atmospheric and alveolar air pressure.

When we breath in the following happens.

The diaphram pulls down.
The intercostal muscles contract
Air pressure is reduced

Air is inhaled into the lungs
The chest expands.

The process of inspiration is Active as it need energy for muscle Contraction.

Inspiration lasts about 2 seconds.

EXPIRATION :-

Relaxation of the intercostal muscles and diapram

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results in downward and inward movement of the ribcage and elastic recoil of the lungs.

As this occurs, pressure inside the lungs exceeds that in the atmosphere and so air is expelled from respiratory tract.

They still Contain Some air and are prevented from Collapse by the intact pleura.

This process is passive as it does not require the expenditure of energy.

When we breathe out the opposition happens.

The diaphram relaxes into its dome position.

The intercostal muscle relax.

The chest become Smaller.

Pressure increases in the lungs

Air is forced out.

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Question No. 5

INTEGUMENTARY SYSTEM:-

Integumentary is the alternative name of skin.

The integumentary System Consists of skin, hairs, nails, glands and nerves.

Its main funtion is to act as a barrier to protect the body from the outside world.

The Integument is the largest System of the body.

16% of body weight.

The integument is up made up of two parts.

CUTANEOUS MEMBRNE

Epidermis- Superfical epithelium.
Dermis- underlying CT With blood Supply.

Accessory membrane:-

Hair, Nails, Exocrine glands

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PROTECTION:-

First line defense against Bacterias viruses.

* Protects underlying structures from Ultraviolet radiation.
* Dehydration.
* Vitamin D production.
* Needed for Calcium absorption.
* Sensation.

Sensory receptors.

SKIN:-

The most obvious function of the integumentary system is the protection that the skin gives to underlying tissues.

The skin not only keeps most harmful substances out, but also prevents the loss of fluids

A major function of the

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Subcutaneous is to connect the skin to underlying tissues such as muscle.

HAIR:-

Hair on the scalp provides insulation from cold for the head.

The hair of eyelashes and eyebrows helps keeps dust and perspiration out of the eyes and hair in our nostrils helps keep dust out of the nasal cavities.

Any other hair on our bodies no longer serves a function but is an evolutionary remnant.

NAILS:-

Nails protect the tips of fingers and toes from mechanical injury.

Fingernails give the fingers greater ability to pick up small objects.