

● **Endocrine glands and its hormones :**

- ductless gland - with introducing chemical secretion - hormone - transportation by blood - target which is located nearby or at the distance - Inducing or preventing the physiological process which specifically take place in body.

● **Hypo thalamus :** Made up by nerve tissue- form the base of diencephalon, a part of forebrain.

Hypothalamus	
It is joined with anterior pituitary gland by hypophyseal portal vessels.	It is linked with pituitary gland by nerve fibre (axis).

Hormones of Hypothalamus	
(1) RH Releasing hormone inducing e.g. GH - RH Inducing the secretion of GH from anterior pituitary gland.	(2) IH Inhibiting hormone-Inhibiting GH - RIH Prevents the growth hormone from anterior pituitary gland.

- (1) Proper control and coordination of cellular activities are done.
 (A) Nervous system (B) Endocrine system (C) Respiratory system (D) A and B Both
- (2) Endocrine gland, made up of nervous tissue.
 (A) Pituitary gland (B) Pineal gland (C) Thymus gland (D) Hypothalamus
- (3) Hypophyseal portal connects
 (A) Hypothalamus - mid pituitary (B) Hypothalamus - Post pituitary
 (C) Hypothalamus - ant. pituitary (D) Ant. pituitary - Post pituitary
- (4) It is connected with hypothalamus by axon.
 (A) Post pituitary (B) Mid pituitary (C) Ant. Pituitary (D) Adenohypophysis
- (5) Hormone stimulating growth hormone
 (A) GH - RIH (B) STH - RIH (C) STH (D) STH - RH
- (6) It is function of GH - RH.
 (A) Stimulates secretion of GH - RH (B) Stimulates secretion of GH
 (C) Stimulates secretion of STH (D) Inhibits secretion of STH
- (7) Which hormones are obtained by pituitary gland from hypophyseal portal ?
 (A) GH - RH (B) GH - RIH (C) PH (D) A and B
- (8) Pituitary gland obtains from axon which induces synthesis of
 (A) GH (B) oxytocin (C) ACTH (D) MSH

- (9) Hypothalamus is which portion of Diencephalon ?
 (A) Roof (B) Right side (C) Floor (D) Left side

Answers : (1-B), (2-D), (3-C), (4-A), (5-D), (6-D), (7-D), (8-B), (9-C)

● **Pituitary gland :**

Location :- A depression of the sphenoid bone of the skull- In sella turcica.

Adenohypophysis : Anterior pituitary gland - Intermediate pituitary gland.

Neurohypophysis : Posterior pituitary gland.

(A) Anterior Pituitary gland :

Controlled secretion of GH (Growth Hormone) : Stimulate the growth, development - Rapid cell division - Protein synthesis.

Less secretion : Dwarfism

Excess Secretion : In Childhood - Abnormal height (Gigantism) At mature age - Upper- lower jaws and appendages get more length (Acromegaly)

- PRL/PH - Prolactin;
After parturition secretion of milk is produced from the mammary gland.
- TSH/TH - Thyroid Stimulating Hormone
It stimulates the thyroid gland and the hormones which are originated from it eg. Thyroxine.
- ACTH - Adreno Cortico Trophic Hormone; Stimulates the secretion of adrenal cortex. Glucocorticoid and Mineralocorticoid
- GTH - LH  - Stimulate the secretion of testosterone, Induce the complete development of male reproductive system.
 -  - Development of Graafian follicle- induce ovulation - Formation of corpus luteum.
- FSH -  - Stimulate the spermatogenesis-
 -  - Stimulate process of oogenesis - Development of follicles occurs in ovary.

(B) Intermediate Pituitary gland :

MSH - Melanocyte Stimulating Hormone, Control of pigments in skin.

(C) Posterior Pituitary gland :

Oxytocin- Stimulates the contraction of smooth muscles of body.- During the Parturition widening of uterus at the time of child birth- milk secretion from the mammary glands.

- Vasopressin : Stimulates the reabsorption of water and electrolytes by the distal tubules of kidney.
- Reduces loss of water through urine (diuresis dilute excess urine stopped).
- Deficiency of ADH : Reduces reabsorption of water and increases urine output. This disorder is known as diabetes insipidus.

● **Pineal Gland :**

Location : Under the corpus callosum between the two cerebral hemispheres of the brain.

Structure : A very small, solid, vascular, reddish grey and conical body.

Hormone : Melatonin - A biological Clock.

Function : Helps in maintaining sleep - wake cycle regulation.

- Regulates metabolism, menstrual cycle, pigmentation and self defense capacity.
- In dark secretion of melatonin more, due to that more percentage of sleepness. (More in child
- In adulthood it decreases).

- (10) It is not part of adenohypophysis.
 (A) Ant Pituitary (B) Mid Pituitary (C) A and B both (D) Post Pituitary
- (11) Disease, due to less secretion of somatostatin, which causes irregularities :
 (A) Dwarfism (B) Critinism (C) Giantism (D) Acromegaly
- (12) In adult stage, excess secretion of STH leads to irregularities of disease.
 (A) Giantism (B) Acromegaly (C) Critinism (D) Dwarfism
- (13) Stimulates synthesis of thyroxine.
 (A) TSH - RH (B) TSH - RIH (C) TSH (D) TCT
- (14) It is target tissue for ACTH.
 (A) Anterior Pituitary gland (B) Adrenal Cortex
 (C) Adrenal Medulla (D) Post pituitary
- (15) Stimulates mammary gland for secretion of milk.
 (A) PH (B) PIH (C) Oxytocin (D) A and C
- (16) LH stimulates secretion of which hormone ?
 (A) Testosterone (B) progesterone (C) A and B (D) oxytocin
- (17) Origin of secretion, which stimulates synthesis of FSH.
 (A) Ant. Pituitary (B) Ovule (C) Hypothalamus (D) Ovarian follicle
- (18) Reason for Diabetes insipidus.
 (A) More secretion of insulin (B) More secretion of vasopressin
 (C) Less secretion of vasopressin (D) Less secretion of insulin
- (19) Number of hormones originating from adenohypophysis.
 (A) 6 (B) 2 (C) 9 (D) 7
- (20) Origin of hormone, which helps in facilitating normal delivery.
 (A) Ant. Pituitary (B) Mid Pituitary (C) Neuro hypophysis (D) Adenohypophysis
- (21) Secretion of pituitary gland regulates the process of spermatogenesis.
 (A) LH (B) FSH (C) Androgen (D) B and C
- (22) Gland present beneath corpus callosum.
 (A) Pituitary gland (B) Hypothalamus
 (C) Pineal gland (D) Thymus gland

Answers : (10-D), (11-A), (12-B), (13-C), (14-B), (15-D), (16-C), (17-C), (18-C), (19-D), (20-C), (21- B), (22- C)

● **Thyroid Gland :**

Location :- Bilobed and located on either side of the upper part of the trachea. The two lobes connected by a narrow connective tissue band called isthmus.

Mineral elements : For the formation of hormone I_2 is necessary. Deficiency of I_2 goiter can occur.

Hormones : (1) T_3 - Triiodothyronin, (2) T_4 - Tetra iodothyronin and TCT - Thyrocalcitonin.

(A) Functions of Thyroxine :

- During the metabolism of carbohydrates control the oxidation and ATP synthesis. Maintains BMR
- Stimulates the process of RBC formation.
- Maintains water and electrolyte balance.

Hypothyroidism (less secretion) → In child - Cretinism - mental retardation - Dumb and Deaf occur.
 → In adult female- Myxedema Accumulation of fluid in subcutaneous tissue- puffy face - inflammatory face.

Hyperthyroidism (Excess secretion) → Irregular in menstrual cycle
 → Exophthalmic Goitre (Grave's disease)

(B) TCT - Thyrocalcitonin :

- Acts upon osteoblast of bones - Decreases the calcium level in blood.

● **Parathyroid Gland :**

Location : Four lobes, the ventral surface of thyroid gland

Hormone : Parathormone (PTH)

Functions : Increases the Ca^{+2} level in blood.

Acts on bone and activates the process of bone resorption.

- Increases Ca^{+2} absorption from the digested food and also activates reabsorption of Ca^{+2} by renal tubules.
- PTH and TCT are complementary to each other.

● **Thymus Gland :**

Location : In upper dorsal side of the heart and aorta.

Structure : Bilobed, mass of lymphoid tissue.

Activation : In children it is a prominent gland but it gradually degenerates in the adult.

Hormone : Thymosin

Functions : Maintains the immunity power. Thymosin stimulates the development and differentiation of T-lymphocytes which provide cell-mediated immunity. Besides this thymosin stimulates the production of antibodies to provide humoral immunity.

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- (23) Endocrine gland with bilobed structure :
 (A) Thymus (B) Thyroid (C) A and B (D) Parathyroid
- (24) Complete colloids found in cells of thyroid glands are formed of
 (A) Zeatin (B) Gelatin (C) Melanin (D) Carotene
- (25) What is reason for increase in the size of thyroid gland ?
 (A) Less secretion of thyroxine (B) More secretion of thyroxine
 (C) Deficiency of iodine in food (D) All of above
- (26) is observed due to hypothyroidism.
 (A) Goiter (B) Myxedema (C) Exophthalmic goiter (D) A and B both
- (27) Condition responsible for irregularity in menstrual cycle in female
 (A) Hyper Thyroidism in adult female (B) Hypothyroidism in adult female
 (C) Hyper thyroidism during embryonic development (D) Hypo thyroidism during embryonic development
- (28) Reduces Ca^{+2} level in blood
 (A) Thyroxine (B) Triiodothyronine (C) PTH (D) TCT
- (29) Combined effect of which maintains Ca^{+2} level in body ?
 (A) PTH - TCT (B) PTH - TCT (C) PTH - TCT (D) PTH - PTH
- (30) Activates absorption of Ca^{+2} in uriniferous tubule
 (A) ADH (B) Aldosterone (C) PTH (D) TCT
- (31) Endocrine lymph gland
 (A) Thymus (B) Thyroid (C) Parathyroid (D) All
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- (32) It is function of thymosin.
 (A) Stimulates cellular immunity (B) Stimulates production of antibody
 (C) Differentiation of B - lymph cells (D) Decrease in cellular immunity
- (33) Endocrine gland situated in thoracic region.
 (A) Thyroid (B) Pancreas (C) Thymus (D) Adrenal
- (34) Endocrine gland with four lobes.
 (A) Thyroid (B) Parathyroid (C) Thymus (D) Pituitary gland

Answers : (23-C), (24-B), (25-C), (26-B), (27-A), (28-D), (29-B), (30-C), (31-A), (32-A), (33-C), (34-B)

● **Adrenal Gland :**

Discovered by Eustessious

Location : One on the anterior part of each Kidney

Origin From : Mesoderm

Weight : 4 to 6 g.

Two main regions of gland → Adrenal Medulla - 10 to 20% region → Adrenal cortex- 80 to 90 %

Adrenal Medulla



Secretion of group of catecholamine

For the reason of origin - Fear, Mental pressure, it secretes at the time of accident or emergency. These hormones are secreted



Adrenaline/ Epinephrine

- Effects : Warm red face
- pupillary dilutions
- Raising of hairs
- Faster heart beats
- More sweating
- Conversion of glucagon to glucose and added in blood



Target tissues : Striated, smooth and cardiac muscular tissues, blood vessels and adipose tissue.

Non-adrenaline/non epinephrine

- Contraction of blood vessels, but it can not do contraction of coronary artery.
- (Other effects are likely to adrenaline only)

● **Hormones of Adrenal cortex (These are steroid types)**

(A) Cortex Region (Zona Glomerulosa)

Secretion : Mineralocorticoid → (Main) aldosterone, Deoxy corticosterone

Regulate mineral metabolism and balance of water and Na⁺

Target Organ : Kidney

(B) Middle region (Zona Fasciculata)

Secretion : Glucocorticoid - **Main secretion :** Cortisol

Regulate carbohydrate, protein and fat metabolism.

Antiallergic and anti-inflammatory effects-suppress the immune responses.

Target organ- Liver

(C) Inner Region : (Zona Reticularis)

- Very less amount of hormones secretion occurs which are sexual.

In male testosterone - in female - estrogen and progesterone.

Target organ: Genetial organs

● **Abnormal secretion:**

- (1) **Less secretion :** Addison Disease (Hypo adrenalism)

Due to deficiency of Mineralo corticoid.

Effects : Weakness, weight loss, nausea and diarrhoea

- (2) **Excess Sercetion :** Cushing's Syndrome **Effects :** More secretion of cortisol

Symptoms : High blood sugar, obesity and rise in blood pressure and blood volume, more amount of Na^+ , H_2O also.

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- (35) Amino acids produced derivatives type of secretions.

(A) Adrenal cortex (B) ovary (C) Testis (D) Adrenal medulla

- (36) secretions are not in the control of secretion of pituitary gland.

(A) Adrenal medulla (B) Adrenal cortex (C) Both A and B (D) Testis

- (37) It is epinephric endocrine gland.

(A) Testis (B) Ovary (C) Adrenal (D) Pancreas

- (38) Pair of hormones regulating metabolism of carbohydrate.

(A) ANF - Relaxin (B) Catechocalamines-cortisol

(C) Tastosterone-Estrogen (D) PTH - PH

- (39) Corticoids are which type of hormones ?

(A) Catecholamines (B) Iodothyronins (C) Peptide (D) Steroid

- (40) From which layer of adrenal cortex mineralo corticoids secreted ?

(A) Outer (B) Middle (C) Inner (D) All

- (41) hormone are secreted in male by zona reticularis.

(A) Cortisol (B) Tastosterone (C) Progesterone (D) A and B both

- (42) It has anti inflammatory effect.

(A) Aldosterone (B) Progesterone (C) Cortisol (D) Testosterone

- (43) Due to inactivity of which layer of adrenal cortex Addison's disease occur ?

(A) Inner (B) Middle (C) Outer (D) All of above

- (44) is disease due to more activity of zona fasciculata of adrenal cortex.

(A) Addison (B) Myxodoma (C) Critinism (D) Cushing syndrome

Answers : (35-D), (36-A), (37-C), (38-B), (39-D), (40-A), (41-D), (42-C), (43-C), (44-D)

● **Pancreas :**

Exocrine and endocrine gland

Endocrine region

- Islets of Langer hans - about 1 to 2 millions

- It occupies 1 to 2% area of pancreas.

(A) α - cells :

secretion : Glucagon

Type : peptide

Hyper glycaemic hormone

(I) In liver cells, glycogenolysis takes place.

Glycogen $\xrightarrow{\text{Glucagon}}$ Glucose (Added in blood)

(II) Gluconeogenesis :

Lactic acid $\rightarrow$ Pyruvic acid $\xrightarrow{\text{Glucagon}}$ Glucose (added in blood)

(B) β - Cells:

Decreases the glucose level in blood - Hypoglycaemic

Glycogenesis

Glucose $\xrightarrow{\text{Insulin}}$ Glycogen (Hepatic cells - Adipose tissue)

Less secretion of Insulin - Diabetes mellitus

(C) δ (Delta) - cells : Somatostatin - Prevents the GH and regulate the growth.

- It controls insulin and glucagon secretion.

● **Sexual endocrine gland :**

(A) **Testis :** Androgens hormone - Steroid type - Main hormone - Testosterone.

Function : Stimulates male accessory reproductive organs and get maturity.

- Develops secondary sexual characteristics.

- Stimulates the spermatogenesis process.

(B) **Ovary :**

Hormones			
	Estrogen	Progesterone	Relaxin
Origin $\rightarrow$	Developed from ovarian follicle	- Corpus luteum	- Corpus luteum
Functions $\rightarrow$	- Development of female reproductive system - Develops the secondary sexual characters - Developments of ovarian follicles occurs	- Stimulates embryo development and foetus development - Stop the ovulation inducing implantation of embryo - After parturition Lactation can induced.	- End of the pregnancy it is secrete - Widening of cervix of uterus and simple child birth can occur.

(45) Which cells of pancreas are exocrine ?

(A) α - Cells

(B) cells of acini

(C) β - Cells

(D) Delta cells

(46) is function of insulin.

(A) Glycogenolysis

(B) Gluconeogenesis

(C) Glycogenesis

(D) Glycolysis

(47) _____ increases blood glucose level.

(A) Adrenaline

(B) Cortisol

(C) Glucagon

(D) All

(48) It is hypoglycaemic hormone.

(A) Cortisol

(B) Adrenaline

(C) Insulin

(D) Glucagon

- (49) Hormone which inhibits secretion of GH.
 (A) GH - RTH (B) Somatostatin (C) A and B (D) STH - RH
- (50) Due to inactivation of which cells, Diabetes malitus occur ?
 (A) α - Cells (B) β - Cells (C) Delta cells (D) Leydig's cells
- (51) Origin of androgen type hormone.
 (A) Interstitial cells (B) Langerhans cells
 (C) Neuro secretory cells (D) germinal epithelium
- (52) Hormone initially secreted from corpus luteum :
 (A) Estrogen (B) Progesterone (C) Relaxin (D) All of above
- (53) Hormone secreted from ovarian follicle
 (A) Relaxin (B) FSH (C) Estrogen (D) Progesterone
- (54) From where Relaxin is originated ?
 (A) Ovarian follicle (B) Leydig's cells
 (C) Corpus luteum (D) Germinal epithelium
- (55) Secondary sexual character, growth of hair in armpit is induced by
 (A) Androgen (B) Progesterone (C) Estrogen (D) A and C both
- (56) Gluco genesis process induces
 (A) Insulin (B) Testosterone (C) Somatostatin (D) glucagon

Answers : (45-B), (46-C), (47-D), (48-C), (49-C), (50-B), (51-A), (52-B), (53-C), (54-C), (55-D), (56-D)

● **Some Hormones of Non-endocrinal glands:**

(certain organs produce some hormones)

eg. Heart, Kidney, Gastro instinal ltract

(A) Heart:

Secretion : Atrial Natriuretic Factor (ANF)

Origin : Wall of atrial of heart

Type : Peptide

Function : Relaxation of blood vessels and
decreases blood pressure

(B) Kidney :

Secretion : Erythropoietin

Origin : J. G. Cells Jaxta (Glomerular cells)

Function : Stimulates formation of RBCs.

(C) Gastro intestinal tract :

Secretion :

Gastrin, secretin, cholecystokinin (CCK),

Gastric Inhibitory peptide (GIP)

(I) **Gastrin :** Stimulate gastric glands to secrete pepsinogen and HCl.

(II) **Secretin:** Acts on the exocrine glands of pancreas and stimulates the secretion of bicarbonate ions and water.

(III) **CCK :** Acts on pancreas and gall bladder and stimulates them to secrete pancreatic enzyme and bile respectively.

(IV) **GIP :** Inhibits gastric secretion.

(D) Growth Factors :

For normal growth of tissues, their repairing and regeneration.

● **Basis on chemical types :**

Types of Hormones :

(A) Peptide, Polypeptide, Proteinous hormone- Insulin, Glucagon, Hormones of pituitary and Hypo thalamus etc.

(B) **Steroidal hormone** : Cortisol, Testosterone, Progesterone

(C) **Iodothyronins** : Hormone of thyroid

(D) **Derivatives of amino acids** : Epinephrine, Norepinephrine

● **Mechanism of Hormone action :**

(A) Endocrinal mechanism of steroidal type hormones

Hormone directly enter in the nucleus of cell



Joint with receptive unit



By the help of specific molecule hormone receptive complex is formed



Link with DNA transcript the specific gene



Formation of m-RNA

Translocation ↓ Translation

Protein synthesis (Enzyme)

(B) Endocrinal mechanism of peptide type hormones

Peptide Hormone



Joined with membrane bound receptor



G type of protein of plasma membrane get active



Activates



ATP → C - AMP



any one specific enzyme gets activation



Other enzyme occur activation

Catch in Memory :

First messenger → Hormone

Second messenger → C - AMP, Ca^{+2} , IP_3

Peptide hormone do not enter in molecule.

Effect of peptide hormone is quick.

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- (57) Non-endocrine tissue (cells), which produces hormone is
(A) Leydig's cells (B) Langerhans cells (C) Juxta glomerular cells (D) Delta cells
- (58) Secretes ANF :
(A) Wall of ventricle (B) Wall of urinary bladder
(C) Wall of auricles (D) Wall of stomach
- (59) Function of erythropoetin
(A) Widens blood capillaries (B) Induces formation of erythrocytes
(C) Inhibits secretion of gastric juice (D) Stimulate secretion of bile juice
- (60) Hormone which interacts with membrane bound receptor.
(A) Epinephrine (B) Tri iodothyronin
(C) Follicle stimulating hormone (D) All of above
- (61) Mostly controlling gene expression, hormones :
(A) Estrogen (B) Testosterone (C) cortisol (D) All
- (62) During mechnism of action forms secondary messenger.
(A) ANF (B) Aldosterone (C) Progesterone (D) Cortisol
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- (63) In which mechanism IP_3 is formed ?
 (A) ADH (B) Testosterone (C) Estrogen (D) Progesterone
- (64) Chemically thyroxine is which type of hormone ?
 (A) Derivatives of Amino acids (B) Peptide
 (C) Iodothyronins (D) Protein
- (65) Forms Receptor complex in the nucleus.
 (A) GH - RH (B) Mineralo - corticoids
 (C) GTH (D) ACTH

Answers: (57-C), (58-C), (59-B), (60-D), (61-D), (62-A), (63-A), (64-C), (65-B)

- (66) **Column- I** **Column - II**
- | | | |
|-----------------------------|--------------------|-----------------------------|
| (1) Secondary messenger | (P) ANF | (A) (1-P) (2-Q) (3-S) (4-R) |
| (2) Peptide hormone | (Q) IP_3 | (B) (1-Q) (2-P) (3-S) (4-R) |
| (3) Intra cellular receptor | (R) Nor-epinephrin | (C) (1-Q) (2-S) (3-P) (4-R) |
| (4) Catecholamine | (S) Relaxin | (D) (1-Q) (2-S) (3-R) (4-P) |
- (67) **Column- I** **Column - II**
- | | | |
|-------------------|------------------------------------|-----------------------------------|
| (1) Androgens | (P) Erythropoiesis | (A) (1-Q) (2-P) (3-R) (4-S) (5-T) |
| (2) Erythropoetin | (Q) Interstitial cells | (B) (1-P) (2-Q) (3-R) (4-S) (5-T) |
| (3) Progesterone | (R) Increase of mammary glands | (C) (1-Q) (2-R) (3-P) (4-T) (5-S) |
| (4) Relaxin | (S) Widens fallopian tube | (D) (1-Q) (2-P) (3-T) (4-S) (5-R) |
| (5) Estrogen | (T) Induces implantation of embryo | |
- (68) **Column- I** **Column - II**
- | | | |
|-----------------|-----------------------|-----------------------------|
| (1) Delta cells | (P) cellular immunity | (A) (1-Q) (2-R) (3-S) (4-P) |
| (2) Alpha cells | (Q) STH - inhibition | (B) (1-Q) (2-S) (3-R) (4-P) |
| (3) Beta cells | (R) Hyper glycomia | (C) (1-P) (2-R) (3-S) (4-Q) |
| (4) T-cells | (S) Hypo glycemia | (D) (1-Q) (2-S) (3-R) (4-P) |
- (69) **Column- I** **Column - II**
- | | | |
|-------------------------|---|-----------------------------|
| (1) Addison disease | (P) More secretion of ADH | (A) (1-S) (2-T) (3-R) (4-U) |
| (2) Mexydoma | (Q) Deficiency of mineralocorh coids | (B) (1-Q) (2-T) (3-R) (4-P) |
| (3) Exophthalmic goiter | (R) Hyper thyroidism | (C) (1-Q) (2-T) (3-R) (4-U) |
| (4) Diabetes incipetus | (S) more secretion of mineralo corticoids | (D) (1-Q) (2-R) (3-T) (4-U) |
| | (T) Hypothyroidism | |
| | (U) Less secretion of ADH | |
- (70) **Column- I** **Column - II**
- | | | |
|--------------------|--------------------------------------|-----------------------------|
| (1) Sex corticoids | (P) Thymus | (A) (1-U) (2-S) (3-T) (4-Q) |
| (2) Catecholamine | (Q) pineal | (B) (1-R) (2-S) (3-P) (4-Q) |
| (3) Thymosine | (R) External layer of Adrenal cortex | (C) (1-U) (2-P) (3-T) (4-Q) |
| (4) Melatonin | (S) Adrenal medulla | (D) (1-U) (2-S) (3-P) (4-Q) |
| | (T) Thyroid | |
| | (U) Inner layer of Adrenal cortex | |

(71)	Column- I	Column - II	
	(1) Oxytocin	(P) Hypothalamus	(A) (1-R) (2-S) (3-P) (4-Q)
	(2) MSH	(Q) Ant. pituitary	(B) (1-P) (2-R) (3-S) (4-Q)
	(3) GH - RIH	(R) Mid. pituitary	(C) (1-S) (2-R) (3-P) (4-Q)
	(4) TSH	(S) Post. pituitary	(D) (1-P) (2-S) (3-R) (4-Q)

Answers: (66-B), (67-D), (68-A), (69-C), (70-D), (71-C)

- **A - Statemen, R - Reasoning type questions.**

Select answers of following questions from the options given below.

(A) A and R both correct, R is explanation of A.

(B) A and R both correct, R is not explanation of A.

(C) A is correct, R is wrong.

(D) A is wrong, R is correct.

- (72) Statement A : Immunity in old persons decreases.

Reason R : With the aging thyroid gland degenerates.

(A) (B) (C) (D)

- (73) Statement A : STH-RH is neurohormone.

Reason R : STH-RH is synthesized by hypothalamus.

(A) (B) (C) (D)

- (74) Statement A : Diabetes malitus caused due to deficiency of ADH.

Reason R : Amount of urine, expelled out increases due to deficiency of ADH.

(A) (B) (C) (D)

- (75) Statement A : Due to deficiency of iodine in food goiter occur.

Reason R : Iodine is essential component for thyroxine hormone, in thyroid gland.

(A) (B) (C) (D)

- (76) Statement A : FSH hormone, regulates cellular metabolism without entering into cell.

Reason R : FSH shows its effect by reacting with receptor complex.

(A) (B) (C) (D)

- (77) Statement A : Ovulation ceases in pregnant woman.

Reason R : At the time of pregnancy, progesterone is proudced by corpus luteum.

(A) (B) (C) (D)

- (78) Statement A : Insulin decreases glucose level in blood.

Reason R : Insulin stimulates gluconeogenesis.

(A) (B) (C) (D)

- (79) Statement A : At the time of fear and emergency catecholamine level increases in blood.

Reason R : ACTH of pituitary induces secretion of corticoids.

(A) (B) (C) (D)

- (80) Statement A : Melatonin functions as biological clock.
Reason R : Melatonin functions to maintain rhythmicity during 24 hours.
(A) (B) (C) (D)
- (81) Statement A : Ca^{+2} level is maintained in blood.
Reason R : PTH increases Ca^{+2} level in blood.
(A) (B) (C) (D)

Answers: (72-C), (73-A), (74-D), (75-B), (76-C), (77-A), (78-C), (79-B), (80-A), (81-B)
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• **True - False (T - F) type questions**

Select proper option for True / false for the following sentences.

- (82) (1) Ca IP_3 is secondary messenger.
(2) Cortisol forms membrane connecting receptor complex.
(3) Steroid hormones normally control genetic expression.
(A) TFF (B) FFT (C) TFT (D) FTF
- (83) (1) CCK prevents secretion of bile juice.
(2) GIP induces secretion of gastric juice.
(3) ANF relates blood capillaries.
(4) Erythropoietin induces formation of R.B.C.
(A) FFTT (B) TFFT (C) TTTT (D) FFFT
- (84) (1) Progesterone is secreted from ovarian follicle.
(2) Relaxin, broadens the neck of fallopian tube.
(3) Leydig's cells are present in female.
(4) Androgen type secretion occurs from ovary.
(A) TTFF (B) FTFF (C) FTTT (D) TTTF
- (85) (1) somatostatin stimulates secretion of GH.
(2) In islets of langerhans 10 to 20 million cells are present.
(3) More secretion of insulin leads to diabetes malitus.
(A) FTT (B) TTT (C) TTF (D) FTF
- (86) (1) Blood sugar increases in Addison's disease.
(2) Glucocorticoids and sexcorticoids, secreted from zone fasciculata.
(3) Adrenaline increases glucose level in blood.
(A) FFF (B) FTT (C) TFF (D) TTT
- (87) (1) Thymus is lymph tissue.
(2) Parathyroid is bilobed gland.
(3) Secretions of thyroid stimulates R.B.C. formation.
(4) Due to myxodema, irregularities in menstrual cycle occur.
(A) TTFF (B) FFTT (C) TTFT (D) TFTF

- (88) (1) Pineal gland is beneath diencephalon.
 (2) MSH is secretion from adenohypophysis.
 (3) During adult stage more secretion of GH leads to acromegaly.
 (A) FTT (B) FTF (C) TTT (D) FFF
- (89) (1) STH-RH is secretion of pituitary gland.
 (2) Target tissue for TSH is thyroid.
 (3) Hormone, stimulating secretion from leydig's cells derives from pituitary gland.
 (4) Thymus gland is situated in thoracic region.
 (A) FFTT (B) FFFT (C) FTTT (D) FTTF

Answers: (82-C), (83-A), (84-B), (85-D), (86-B), (87-D), (88-B), (89-C)

- (90) In Fig. 1 labelled P as gland hormone is produced.
 (A) oxytocin (B) Melatonin (C) GH-RH (D) TSH
- (91) Q is which gland in Fig.1 ?
 (A) Pituitary gland (B) Pineal gland
 (C) Thyroid gland (D) Hypothalamus gland
- (92) Which gland is exocrine and endocrine, shown in Fig.1 ?
 (A) V (B) U (C) S (D) Q
- (93) Which is parathyroid gland, labelled in Fig.1 ?
 (A) R (B) T (C) S (D) Q

Answer Question number 94 - 96 from Fig.2.

- (94) What is indicated by R in fig. 2 ?
 (A) Adenohypophysis (B) Infundibulum
 (C) Axon (D) Hypophyseal portal
- (95) In Fig. 2 vassopressin is secreted by whom ?
 (A) T (B) S (C) P (D) R
- (96) From which part GH-RH is secreted in Fig.2 ?
 (A) T (B) S (C) U (D) Q
- (97) In Fig-3, hormone secreted by P
 (A) PTH (B) TCT (C) PH (D) PIH
- (98) Shows bridge in Fig. 3.
 (A) S (B) R (C) Q (D) P

- (99) In Fig. 3, parts of respiratory system :
 (A) R and S (B) Q and R (C) P and S (D) P and R

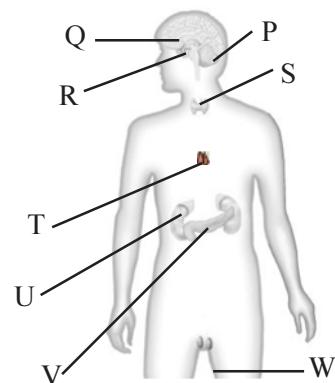


Figure 1

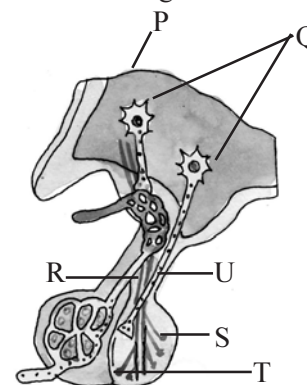


Figure 2

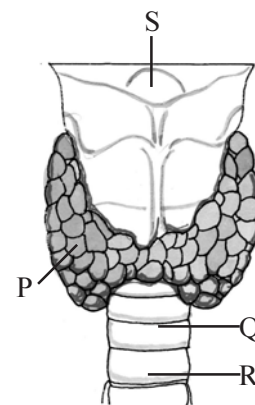


Figure 3

- (100) What is indicated by 'P' in Fig. 4 ?
 (A) Adrenal cortex (B) Renal medulla
 (C) Adrenal medulla (D) Renal cortex
- (101) is not hormone secreted from Q in Fig. 4.
 (A) Cortisol (B) Estrogen (C) Testosterone (D) Epinephrin
- (102) In Fig.5 internal structure of is shown.
 (A) ovary (B) pancreas (C) testis (D) thyroid
- (103) What is indicated by 'P' in Fig. 5 ?
 (A) Leydig's cell (B) Hepatic lobules
 (C) Langerhan's cells (D) Pancreatic acini
- (104) In Fig.6, mode of action of which hormone is represented ?
 (A) cortisol (B) progesterone (C) MSH (D) None
- (105) What is suggested by origin of secondary messenger in Fig.6 ?
 (A) P (B) 2 (C) Q (D) 3
- (106) Fig.7 indicates mode of action of which hormone ?
 (A) Peptide (B) Iodothyronins
 (C) Catecholamines (D) Steroids
- (107) In Fig.7 indicates genome.
 (A) Q (B) P (C) R (D) T

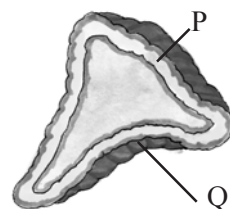


Figure 4

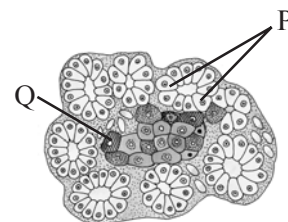


Figure 5

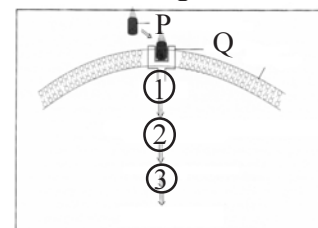


Figure 6

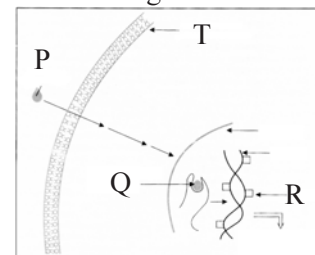


Figure 7

Answers : (90-B), (91-D), (92-A), (93-C), (94-C), (95-B), (96-D), (97-B), (98-C), (99-A), (100-C), (101-D), (102-B), (103-D), (104-C), (105-B), (106-D), (107-C)

● Summery of PMT-NEET

- Endocrinology - is the branch which is connected with a physiology as a branch of biology.
- Father of Endocrinology - Thomas Adison - Hormone = To Exite.
- 'HORMONE' word given by Starling.
 In 1902 Secretin first hormone was discovered.
- **Callons** : A secretion of one endocrine gland which stimulates the target organ for secrete the hormones only, it is called callons.
- **Autocoids** : Hormones produce from the one endocrinal gland which act on specific target oragan, it is called Autocoid.

Diabetogenic: Hormone which effect on specifically on carbohydrates metabolism.

Ketogenic : Hormone which mainly act on metabolism of fats.

Callorigenic: Mainly BMR is effected.

- Tuber Cinerium

Neurohypophysis → Infudibulum

- Pars Nervosa
- pars distalis
- Adenohypophysis - Pars tuberalis
- pars Intermedia

By the deficiency of pituitary dwarfism can occur, it is called **Ateliosis**.

- Dwarf person shown in circus which is called **midgets**. They are physically and mentally healthy but they have slow maturity in sexually.
- Excess secretion of STH/GH in adult human being - Acromagely.
- FSH also known as Gameto Kinetic Factor. It secrete in male and female both.
- LH is also known as Gamete Releasing Factor.
- **Hashimoto Disease :**
- Acute stress by the lack of thyroxine in this disease. So for the treatment of this disease any medicine or thyroxine hormone also act as a poison. For that reflexion formation of antibody occur in body and destroy the thyroid gland.
- **Plumar Disease :**
- In this disease abnormal growth of thyroid gland occur, but in this gland small buds like nodes are formed which can be visualised. Which is called Toxic adenoma. During the excess secretion thyroid gland get swollen and enlarged.
- Parathyroid gland was discovered by Reynard. Deep study of it observed by Sandrom.
- Resultant of excess secretion of PTH, Osteolytic cells in more amount unnecessarily phagocytics So that bones becomes rigid and weak. This situation is called an Osteoporosis.
- When increases the amount of Ca^{+2} , decreases the amount of PO_4^{-3} , which is known as Hypercakimia and Hypophospheremia respectively.
- In kidney or Gall bladder accumulation of Ca^{+2} so formation of stone can occur.
- **Benting and Best** - First time insulin discovered.
- Molecular structure of insulin is given by **A.F.Sanger**.
- Human insulin was synthesis by Tsan.
- **14th Novemeber- World diabetes day**
- **Glycosuria :** Amount of glucose in blood $> 180 \text{ mg/dl}$.
- **Polydipsia :** In excess amount diuresis can occur, possibility of dehydration is more. This type of petient thrust more and continuously, electrolytes are remove from the body. More hungry can get.
- Secretion of male hormone by adrenal gland. Mainly is Dihydroapy androsteron.

Keto acidosis :

- Activation of fat and incomplete of ketonebody in adipose tissue is formed.
- As a ketonebody like acetone aceto acetic acid, Beta hydroxy butrate.
- Ketone body is poisonous - Increasing the amount of Ketone in body so ketoacidosis can form in body.

Diabetes Coma :

- Ketoacidosis, Polydipsia, Hyperglycemia with these complex, patient get effect and becomes unconscious.

Heterodrine gland :

- This type of endocrine gland, which secretes the hormone, more over some other functions also they do. .
e.g. Pancreas, Gonads, Mucaso of digestive system, Kidney, placenta

Simond's disease :

- This disease occurs by degradation of anterior part of the pituitary gland. So it is called Simond's disease.

Metachrosis :

- Pigmentation change of skin with the help of MSH.

Insulin shock :

- If diabetic patient passes through the physical stress or fasting during that he takes injection of insulin, so decreasing rapidly glucose level in blood 40-160 mg. Patient becomes unconscious and sometimes dies also.

● Questions for NEET

- (108) Which of the following situation is responsible for acromegaly ?
(A) More secretion of STH (B) More secretion of thyroxine
(C) Deficiency of thyroxine (D) More secretion of adrenaline
- (109) FSH is
(A) glyco protein (B) metallo protein (C) glyco lipid (D) Phospholipid
- (110) Postnatal effects
(A) Egestion (B) Blood pressure (C) osmoregulation (D) Oxidation reaction
- (111) Hormone known as FFF Or 3F
(A) CCK (B) Glucagon (C) Thyroxine (D) Adrenaline
(Hint : Fight, Fear, Fraction of the second-3F)
- (112) Of the following which acts as secondary messenger ?
(A) Phospholipid (B) Glycoprotein (C) carrier protein (D) Immuno globulin
- (113) Of the following which is not secondary messenger in hormone action ?
(A) C-AMP (B) Sodium
(C) Calcium (D) IP₃ (Inositol triphosphate)
- (114) Deficiency of which hormones from the following reduces Ca⁺² level ?
(A) Calcitonin (B) Parathormone (C) Thyroxine (D) A and B both
- (115) If adrenal cortex is injured, it will affect secretion of following or not ?
(A) Adrenaline (B) Cortisol (C) Aldosterone (D) Androstidione
- (116) Which hormone induces relaxation of blood capillaries and increasing O₂ use and induce gluconeogenesis ?
(A) Glucagon (B) Insulin (C) Adrenaline (D) ACTH
- (117) Find the improper pair from the following.
(A) Corpus luteum - Relation (secretion) (B) Insulin- Diabetes mellitus (disease)
(C) Glucagon - Beta cells (source) (D) Somatostatin - Delta cells (source)
- (118) is hormone of adenohypophysis, controlled by feedback mechanism.
(A) Oxytocin (B) TSH (C) Vasopressin (D) TCT
- (119) Identify, father of endocrinology.
(A) Land Steiner (B) Renard (C) Harrington (D) Thomas Addison
- (120) Of the following secretion of which is controlled, axon of neurosecretory neuron ?
(A) Adrenal cortex (B) Pineal gland
(C) Ant pituitary gland (D) Post pituitary gland
-

- (121) One person has more urination frequency requires more drinking water but has normal blood glucose level. State the reason for such situation.
 (A) More secretion of glucagon.
 (B) Decrease in insulin secretion from pancreas.
 (C) Imbalance of glucose in urine.
 (D) Decrease in secretion of vaso pressin from post pituitary.
- (122) Patient of Diabetes malitus, though eating food without carbohydrate, excretet glucose in urine, because
 (A) Glycogen from muscles released in blood.
 (B) Amino acids from liver released in blood.
 (C) Amino acid dissociates in the kidney and converted into glucose.
 (D) In adipose tissue lipid dissociates and transforms into glucose.
- (123) Diuretinis is due to which situation ?
 (A) Less secretion of vassopressin.
 (B) More secretion of ADH.
 (C) Less secretion of oxytocin.
 (D) Effect of erythropoeitin removed from kidney.
- (124) Metachrosis phenomenon
 (A) Change of skin color (B) Failure of kidney
 (C) Acromegaly (D) Heart rate become faster
- (125) It is known as milk secreting hormone.
 (A) STH (B) Oxytocin
 (C) PIF (PTH) (D) Thyro calcitonin
- (126) Hormone induces metamorphosis in tadpole of amphibia.
 (A) Relaxin (B) Melatonin (C) Thyroxine (D) Cortisol
- (127) Disease due to acute deficiency of thyroxine.
 (A) Tetany (B) Thyrotoxicosis
 (C) Hypophosphastamia (D) Hashimoto disease
- (128) Which of the following is responsible for Diabetes coma ?
 (A) Ketoacidosis (B) Polydipsia
 (C) Hyper glysomia (D) All of above
- (129) Which scientist explained molecular structure of insulin ?
 (A) A. F. Sanger (B) E. C. Kandle (C) Raynard (D) Barger
- (130) Hormone discovered for the first time
 (A) Thyroxine (B) Adrenaline (C) Secretin (D) Insulin
- (131) Who has coined the term hormone?
 (A) Harris (B) E. H. Schally (C) W. M. Baylis (D) E. H. Starling
- (132) Size of which gland decreases with increase of age ?
 (A) Adrenal (B) Thymus (C) Pituitary (D) Thyroid
- (133) Of the following which gland secretes life saving hormone ?
 (A) Thyroid (B) Thymus (C) Adrenal (D) Pancreas
- (134) Which of the following gland is not considered as Heterofine gland ?
 (A) Pituitary (B) Heart
 (C) Pancreas (D) Kidney
- (135) Less secretion of mineralocorticoid do not depend on RAAS, induces which of the following disease ?
 (A) Cushing's disease (B) Cone disease
 (C) Adison's disease (D) Grave's disease

Answers : (108-A), (109-A), (110-B), (111-D), (112-C), (113-B), (114-B), (115-A), (116-C), (117-C), (118-B), (119-D), (120-D), (121-D), (122-D), (123-A), (124-A), (125-B), (126-C), (127-D), (128-D), (129-A), (130-C), (131-D), (132-B), (133-A), (134-A), (135-B)

