Chapter 10. Endocrine System

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Solution 1:

1. Pituitary gland
2. Somatotrophin
3. Thyroxine
4. Pancreas
5. Liver
6. Adrenal gland
7. Adenohypophysis
8. Neurohypophysis
9. Thyroxine

Solution 2:

1. Somatotrophic Hormone – It is essential for the normal growth of an organism.
2. Thyroid stimulating hormone – It stimulates the activity as well as the growth of thyroid glands.
3. Adrenocorticotrophic hormone – It stimulates the activity of adrenal cortex.
4. Gonadotrophic hormone – It promotes the growth of ovarian follicles in females and the growth of sperms in males.
5. Insulin hormone – It lowers the blood sugar level.
6. Corpus luteum – It secretes progesterone.
7. Glucagon hormone – It raises the blood sugar level.

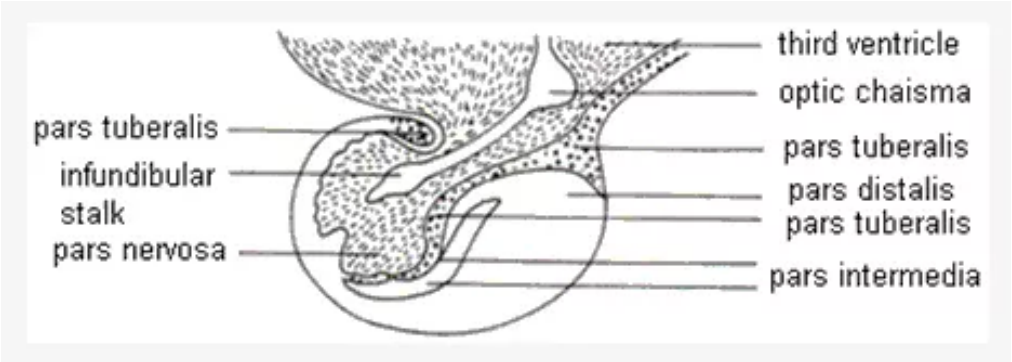
Solution 3:

1. Insulin
2. STH
3. Islets of Langerhans
4. STH
5. Insulin

Solution 4:

1. FSH – Follicle stimulating hormone
2. LTH – Luteotropic hormone

Solution 5:



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Solution 6:

1. (b)
2. (c)
3. (a)
4. (e)
5. (d)

Solution 7:

1. True
2. False
3. False
4. False
5. False

Solution 8:

1. Hormone – The secretions of endocrine glands which are carried by blood to the target organs are called hormones.
2. Endocrine gland – The glands without ducts which secrete hormones are called endocrine glands.
3. Exocrine gland – The glands with ducts which secrete enzymes are called exocrine glands.
4. Hypothyroidism – It is the under secretion of thyroxine by thyroid gland which leads to retarded growth and mental development in infants.
5. Hyperglycemia – Increase in blood sugar level is called hyperglycemia.
6. Hypersecretion – The over activity of any gland leads to over secretion of hormones called hypersecretion.

Solution 9:

Name of Gland	Hormone	Function
(i) Thyroid	Thyroxine	It controls the absorption of glucose in the body.
(ii) Pancreas	Insulin	It lowers the blood glucose by utilizing glucose for the release of energy.
(iii) Adrenal medulla	Adrenaline	It brings rapid physiological responses to emergencies such as any danger or fear.

Solution 10:

1. Diabetes mellitus – Diabetes mellitus is a disease caused by the deficiency of insulin hormone.
2. Beta cells – Beta cells are the cells of pancreas that secrete insulin.
3. Exophthalmic goitre – The over activity of thyroid gland leads to its enlargement, producing a big swelling in the neck region called exophthalmic goiter.
4. Releasing hormones – A substance produced by the hypothalamus that is capable of accelerating the secretion of a given hormone by the anterior pituitary gland.

Solution 11:

Disease	Name of Gland
(i) Goitre	Thyroid
(ii) Diabetes mellitus	Pancreas
(iii) Gigantism	Pituitary gland
(iv) Diabetes insipidus	Pancreas
(v) Cretinism	Thyroid
(vi) Exophthalmic goitre	Thyroid

Solution 12:

Insulin secreted by pancreas controls the level of glucose in blood.

Solution 13:

Adrenaline is called an emergency hormone because it brings rapid physiological responses to emergencies like danger, fear or other situations requiring vigorous action.

Solution 14:

Name of the Gland	Hormones
(i) Anterior Pituitary	a. Growth hormone/Somatotrophin b. Adrenocorticotrophic hormone c. Thyroid stimulating hormone d. Gonadotrophic hormone e. Luteotrophic hormone
(ii) Testes	a. Testosterone
(iii) Ovary	a. Oestrogen b. Progesterone
(iv) Adrenal cortex	a. Adrenaline b. Noradrenaline
(v) Pancreas	a. Insulin b. Glucagon

Solution 15:

Glands	Hormones	Functions	Diseases due to hyposecretion	Diseases due to hypersecretion
1. Pituitary gland	**Anterior Lobe:**		a. Dwarfism	a. Gigantism
	a. Growth hormone/ Somatotrophin	It is essential for the normal growth of an organism.		
	b. Adrenocorticotrophic hormone	It stimulates the activity of adrenal cortex.	Addision's disease	Cushing's disease
	c. Thyroid stimulating hormone	It stimulates the activity of thyroid glands as well as their growth.	Cretinism	Goitre
	Posterior Lobe:			
	a. Antidiuretic hormone	It controls water and salt balance of body fluids.	Diabetes insipidus	
	b. Oxytocin	It stimulates contraction of smooth muscles of uterus during child birth.		
2. Thyroid	a. Thyroxine	It speeds up basal metabolic rate of the body.	Cretinism	Goitre
	b. Calcitonin	It causes the deposition of calcium in the bones.		

3. Parathyroid	a. Parathormone	It maintains the calcium level in the blood.		
4. Thymus	a. Thymus	Helps in the growth of children and provides immunity.		
5. Pancreas	a. Insulin	It lowers the glucose level in the blood.	Diabetes mellitus	Hypoglycemia
	b. Glucagon	It raises the level of glucose in the blood.		
6. Adrenal glands	**Adrenal cortex:** a. Mineralocorticoids	They regulate mineral metabolism in the body.	Addision's disease	Cushing's syndrome
	b. Glucocorticoids	They regulate the metabolism of carbohydrates, fats and proteins in the body.		
	c. Sexcorticoids	They help in the development of secondary sexual characters.		

	Adrenal Medulla: a. Adrenaline b. Noradrenaline	It brings rapid physiological responses to emergencies like danger, fear or other situations requiring vigorous action. It regulates the blood pressure under normal conditions.		
7. Testes	Testes: a. Testosterone	It stimulates male secondary sexual characters.		
8. Ovary	Ovary: a. Oestrogen b. Progesterone	It stimulates female secondary sexual characters. It helps in the contraction of uterus during the birth of a baby.		

Solution 16:

1. Exophthalmic goitre – It is caused due to over activity of thyroid gland.
   Symptoms are – Enlargement and protrusion of the gland below the chin, increased pulse rate, nervousness and bulging of the eyes.
2. Diabetes mellitus – It is caused due to less secretion of the insulin hormone.
   Symptoms are – Frequent urination, Sudden weight gain or weight loss, Excessive thirst and hunger.

Solution 17:

In hilly region, water has less iodine which is required for the production of thyroxine. So due to the deficiency of thyroxine, people suffer from goiter.

Solution 18:

Insulin is a protein hormone and if it is given orally it would be digested upon by the protein digesting enzymes in the alimentary canal.

Solution 19:

1. The endocrine cells present in pancreas are: alpha cells, beta cells and delta cells.

2. Insulin and glucagon.
3. Insulin – It lowers the glucose level in the blood.
4. Glucagon – It raises the level of glucose in the blood.

Solution 20:

1. Adrenaline
2. Insulin
3. Glucagon
4. Thyroxine
5. Calcitonin
6. Adrenaline
7. Growth stimulating hormone
8. Sex corticoids
9. Antidiuretic hormone
10. Non adrenaline

Solution 21:

1. (b) Diabetes
2. (b) Adrenal gland
3. (d) Pancreas
4. (b) Gigantism
5. (a) Insulin
6. (b) Liver
7. (c) Target
8. (c) under secretion of insulin
9. (a) beta cells of pancreas
10. (d) glucagon
11. (c) progesterone