Endocrine System and Adolescence

REVIEW QUESTIONS

Multiple Choice Questions:

1. Put a tick mark (✓) against the correct alternative in the following statements:

(a) Cortisone hormone is secreted by:

1. Medulla of adrenal
2. **Cortex of adrenal**
3. Pancreas
4. Thyroid

(b) Which one of the following hormones stimulates the breakdown of glycogen in the liver into glucose:

1. Insulin
2. Adrenaline
3. **Glucagon**
4. Thyroxine

(c) Which one of the following hormones converts excess of glucose into glycogen:

1. Glucagon
2. Thyroxine
3. **Insulin**
4. Adrenaline

(d) Which one of the following glands is also called master gland:

1. **Pituitary gland**
2. Adrenal gland
3. Thyroid gland
4. Ovary

(e) The emergency hormone to face the danger or to fight is secreted by:

1. Islets of Langerhans
2. Adrenal cortex
3. Pituitary

4. **Adrenal medulla**

(f) Which one of the following endocrine glands produces its hormone in large quantities as a result of emotional stimulation?

1. Thyroid
2. Islets of Langerhans
3. **Adrenal medulla**
4. Adrenal cortex

Adrenal medulla produces its hormone in large quantities as a result of emotional stimulation.

(g) In humans, increased thyroxine production results in (tick the correct answer):

1. **Increased metabolism**
2. Decreased metabolism
3. Dwarfism
4. Cretinism

Short Answer Questions:

Question 1.
What is a hormone?
Answer:
The secretions of the endocrine glands are called Hormones, which are poured directly into the blood and are carried to the target organs.

Question 2.
In table given below, fill in the blanks by naming endocrine glands, the hormones they secrete, and the function they perform, in a normal person.
Answer:

S.No.	Name of the gland	produced	Function
1.	Thyroid	Thyroxine	Control of metabolic rate
2.	Pancreas	Insulin	Regulation of sugar in blood.
3.	Adrenal	Adrenaline and cortisone	Preparing the body for action
4.	Pituitary	(i) Growth hormone (ii) Thyroid stimulating hormone	(i) For growth (ii) Stimulates thyroid gland to secrete thyroxine

Question 3.

Match the items in Column A with those in Column B. Column A Column B

(a) Cretinism	**(*i*) Pituitary gland**
(b) Diabetes mellitus	**(*ii*) Under development of infant**
(c) Increased metabolic rate	**(*iii*) Over secretion of thyroxine**
(d) Simple goitre	**(*iv*) Insufficient iodine in food**
(e) Growth hormone	**(*v*) Insufficient insulin in blood.**

Ans. Column A	**Column B**
(a) Cretinism	(*ii*) Under development of infant
(b) Diabetes mellitus	(*v*) Insufficient insulin in blood.
(c) Increased metabolic rate	(*iii*) Over secretion of thyroxine
(d) Simple goitre	(*iv*) Insufficient iodine in food
(e) Growth hormone	(*i*) Pituitary gland

Question 4.

Name the source and the function of each of the following hormones:

Hormone	Source	Function
(a) Glucagon (b) Thyroxine (c) Adrenaline (d) Insulin (e) Cortisone		

Answer:

Hormone	Source	Function
(a) Glucagon	Pancreas	Breakdown of glycogen to glucose. Raises sugar in the blood.
(b) Thyroxine	Thyroid gland	Control of metabolic rate
(c) Adrenaline	Adrenal gland	Prepare the body to face emergency, stress
(d) Insulin	Pancreas	Regulation of sugar in blood.
(e) Cortisone	Adrenal cortex	Regulates carbohydrate metabolism. Its deficiency causes Addison's disease.

Question 5.
What is the difference between an exocrine gland and an endocrine gland?
Answer:
The salivary glands, pancreas, etc., are exocrine glands, they send their secretions through ducts directly to the target orgOn the other hand, the endocrine glands are ductless glands. Their secretions are called hormones, which are poured directly into the blood and are thus carried to the target organs.

Question 6.
Why is pitnitary gland is called “master gland”?
Answer:
The pituitary gland is called “master gland” because it produces hormones that control other glands and many body functions including growth (growth hormone, Thyroid and Gonad stimulating hormone).

Question 7.
Briefly write about the importance of physical hygiene during adolescence.
Answer:
Physical hygiene also named as Personal hygiene plays a crucial role in maintaining healthy during adolescence. The teenager should follow the below mentioned activities to promote their health:

1. **Proper and Safe Food:** Adolescence is a stage of rapid growth and development. Hence, a teenager should take proper care of their diet. They should take proper balanced diet that provides protiens, carbohydrates, fats, minerals and vitamins. They should take freshly prepared food and avoid stale food. They should take milk, fruits and fresh vegetables.
2. **Proper life Style:** Regular Exercise and sleep are necessary for maintaining good health. Teenager should avoid long hours of continous table work, television watching. Teenager should not consume alcohol, drugs or smoking.
3. **Cleanliness:** Teenager should take bath regularly. They should always wash their hands before and after having meals. Brushing up teeths after every meal. They should always change and wear washed clothes especially undergarments. Regular toilet habits should be adopted for maintaining good health. Teenager must keep their feet cleaned and protected. Injuries due to bacteria like tetanus, hookworms and insects may be issued if barefoot walk is undertaken. They must wash and comb their hairs regularly. All body parts must be washed and cleaned everyday. If cleanliness is not maintained there may occur chances of catching bacterial infection. Girls should take special care of cleanliness during the time of menstrual period.
4. **Physical Exercise:** Inorder to keep the body fit and healthy, teenager’s should walk, exercise and play outdoor games regularly in fresh air. Playing Outdoor games reduces the stress and strain of adolescence.

Question 8.
Briefly discuss any four activities which can be practiced to overcome stress.
Answer:
Stress is a state of mental or emotional strain and in simple terms it is called as tension. The stress can be controlled or reduced by following the below mentioned steps:

1. **Yoga:** It is a mind-body practice that combines physical poses, controlled breathing, and meditation or relaxation. Yoga helps in reducing steps by:
   (a) Increasing Flexibility
   (b) Increasing muiscle strength and tone.
   (c) Improving respiration, energy and vitality.
2. **Exercise:** Exercise or Running or Jogging for 30 to 45 minutes at least three times a week reduce stress and keep's the body much healthier.
3. **Proper sleep schedule:** Improving your sleep schedule also helps in reducing the stress.
4. **Reading** is a great way to calm your mind and to gain more knowledge.
5. **Practice Hobbies of your interest:** One should must keep practicing their hobbies as it helps in reducing the stress. Enjoy playing guitar, paino or listening music or doing riddles.

ADDITIONAL QUESTIONS

I. Multiple choice questions. Tick (✓) the correct choice:

1. Chemical control in organisms is brought about by

1. enzymes
2. neurons
3. **hormones**
4. all the above.

2. Master endocrine gland

1. thyroid
2. **pituitary**
3. pancreas
4. adrenal

3. The hormone thyroxine is secreted by

1. pituitary gland
2. adrenal gland
3. **thyroid gland**
4. pancreas

4. Insulin is secreted by

1. **pancreas**
2. pituitary gland
3. thyroid gland
4. adrenal gland

II. Fill in the blanks:

1. Hormones are produced by **endocrine glands.**
2. The master gland in the body is **pituitary glands.**
3. Adrenal glands are present above **kidneys.**
4. The hormone insulin is secreted by **pancreas.**
5. The hormone thyroxine is secreted by **thyroid gland.**
6. Blood pressure is controlled by the endorine gland called **adrenal gland.**

III. State whether the following statements are true (T) or false (F):

1. Hormones are secreted by ductless glands.
   True.
2. For hormones to be effective in their actions, they are required in sufficiently large quantities.
   False. For hormones to be effective in their actions, they ar-e required in extremely small quantities.
3. The adrenal gland helps the body to fight stress.
   True.

IV. Find the odd-one out, giving reason:
Pituitary, adrenal, thyroid, salivary gland
Answer:
Salivary gland is the odd-one out as it is not an endocrine gland. Rest three are ductless endocrine glands.

V. Name the following:

Question 1.
Five endocrine glands found in human body.
Answer:

1. Pituitary gland.
2. Thyroid gland.
3. Parathyroid gland.
4. Adrenal gland.
5. Pancreas.

Question 2.
Master gland in human body.
Answer:
Pituitary gland.

VI. Define the following:

1. Hormones
2. Endocrine glands

Answer:

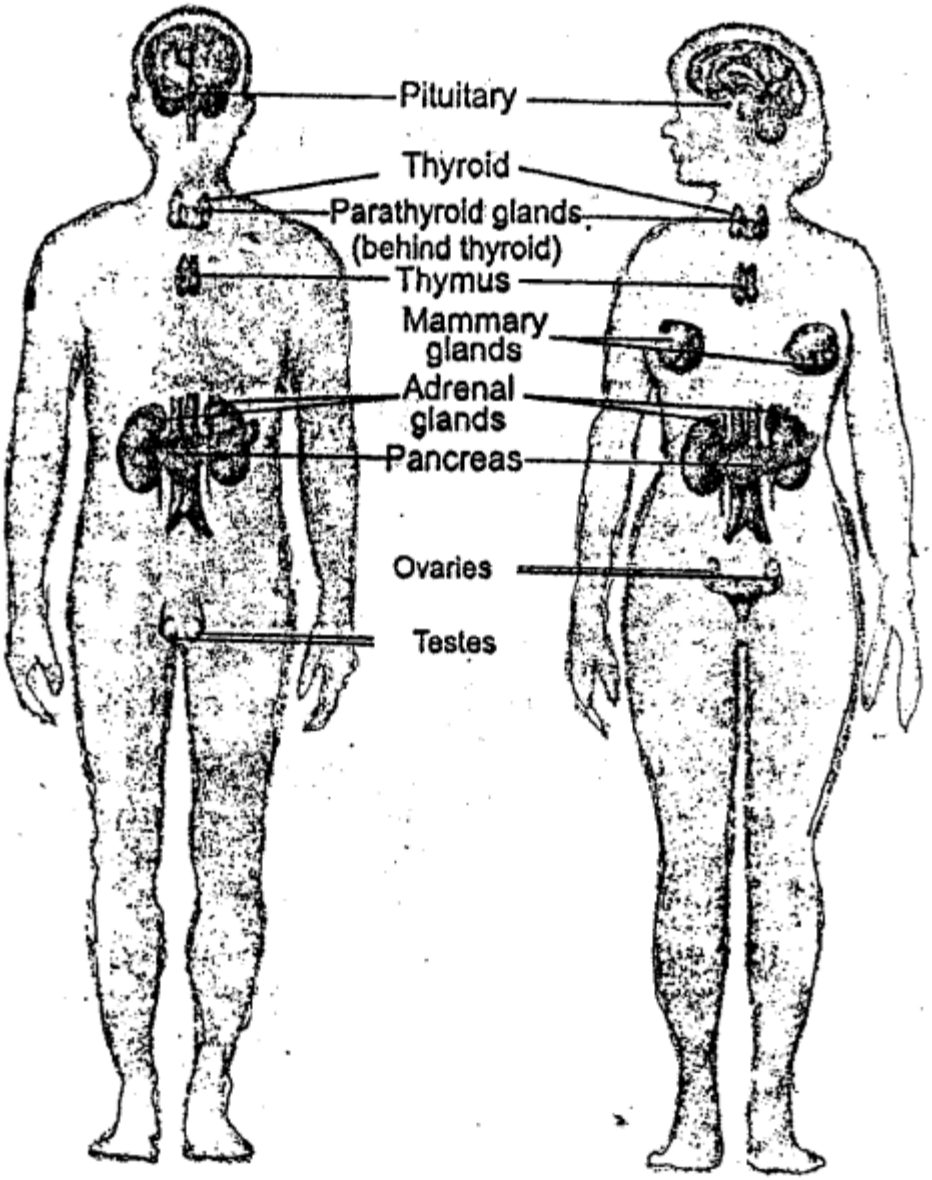
1. **Hormones:** Hormones are chemical substances in living organisms which bring about chemical coordination and are responsible for regulating growth and development.
2. **Endocrine glands:** Endocrine glands are special organs which produce hormones and pour them into the blood for chemical coordination in living beings. They are ductless glands.

VII. Answer the following questions:

Question 1.
Describe two characteristic features of hormones.
Answer:
Characteristics features of hormones are:

1. Hormones produce long term changes such as a child's growth and sexual maturation.
2. Hormones adjust the amount of salt and water in the body tissues, sugar in the blood and salt in the sweat.
   They are transported in blood.

Question 2.
Draw an outline figure of the human body and show the location of different endocrine glands.
Answer:



Endocrine System

Question 3.
What causes diabetes?
Answer:
Lack of insulin causes diabetes. The pancreas produce insulin but the body is not able to use it. This causes excess glucose to build up in the blood causing diabetes.

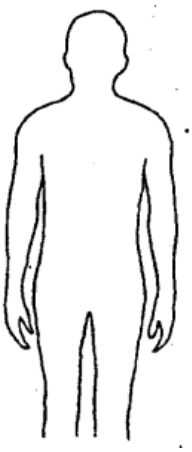
Question 4.
Which gland secretes insulin?
Answer:
Pancreas.

Question 5.
What happens when the thyroid gland secretes less hormone?

Answer:
When the thyroid gland secretes less hormone, thyroid gland swells causing goitre.

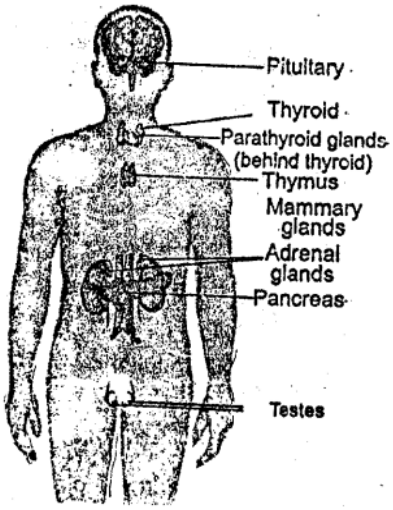
VIII.

Question 1.
Given below is an outline of the human body. Draw and label on the diagram.



1. the gland that secretes insulin.
2. the gland that produce adrenaline.

Answer:



Question 2.
Name the disease caused by failure of the gland to produce insulin.
Answer:
Diabetes.