

## 2. Reaching the Age of Adolescence

### Evaluation

#### 1. Question

Adolescents sometimes experience various mood swings such as being happy, sad, angry, excited or irritated. What makes them behave so?

#### Answer

Various mood swings such as being happy, sad, and angry, excited or irritated are the emotions that adolescents experience as they reach the stage of puberty. This is because of the hormones secreted by the endocrine glands of human body.

#### 2. Question

The deficiency of thyroxine hormone in children is cretinism. It slows down growth. Apart from this, write one more disorder.

#### Answer

Goitre. This is caused due to the enlargement of the thyroid gland.

This is a diagram showing goitre in human. The thyroid gland gets enlarged in goitre.



#### 3. Question

Note the endocrine glands given in column A with their respective hormones in column B.

A	B
Pituitary	Oestrogen
Thyroid	Adrenalin
Pancreas	Growth hormone
Adrenal	Thyroxine
Ovary	Insulin

## Answer

i. Pituitary – Growth hormone

Reason- Pituitary gland helps is associated with the secretion of growth hormone. Deficiency of this hormone leads to a condition known as dwarfism

ii. Thyroid – Thyroxine

Reason- Thyroid gland secretes thyroxine hormone. Deficiency of iodine could result into thyroid related diseases.

iii. Pancreas – Insulin

Reason- Insulin hormone is secreted by the beta-cells of the exocrine part of pancreas, which is known as islets of Langerhans. Deficiency of insulin in the body result in a disorder known as diabetes mellitus.

iv. Adrenal – Adrenalin

Reason- Adernalin hormone is secreted by adrenal gland of the body. This hormone is secreted when we are in excited state.

v. Ovary – Oestrogen

Reason- This hormone released by the ovary is responsible for the primary and secondary sexual characters.

## 4 A. Question

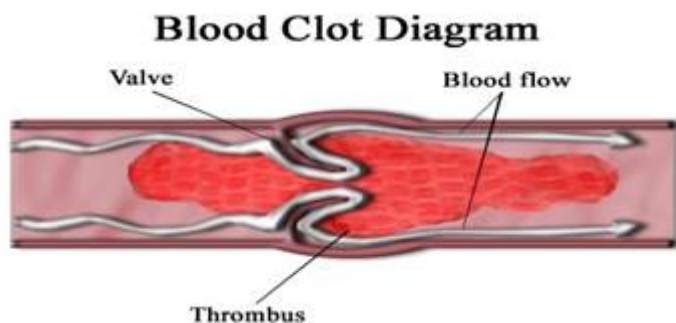
Give reasons for the following.

Smoking increases the risk of blood clots.

## Answer

Smoking increases the risk of blood clot because the inner lining of the artery gets damaged due to smoking. This makes the blood sticky as the lumen of artery gets constricted, thereby increasing the risk of blood clot.

The diagram depicts blood clot. The lumen of blood vessel can be seen constricted.



## 4 B. Question

Give reasons for the following.

Smoking aggravates asthma.

### Answer

While smoking, harmful chemical compounds get settled in the organs of the respiratory system. This reduces the airflow in the respiratory tract. Hence, causing asthma.

This is a diagram showing how smoking can lead to asthma. Normal humans have proper lumen of respiratory tract while in asthmatic humans the lumen gets constricted.



### 4 C. Question

Give reasons for the following.

Bean sprout is good for health.

### Answer

Bean sprout is good for health because they are highly nutritious and are easy to digest. While the period of overnight soaking, the starch in the bean is converted into simple sugar, proteins that are comparatively easy to digest. They also contain essential elements like calcium, iron, etc.

### 4 D. Question

Give reasons for the following.

Cancerous cells multiply rapidly.

### Answer

Normal cells are characterised by the property of **contact inhibition**. It is the property such that when the walls of the cells come in contact with each other, their growth stops further. Cancerous cells seem to have lost this property due to the damaged genetic material and they multiply rapidly.

### 5. Question

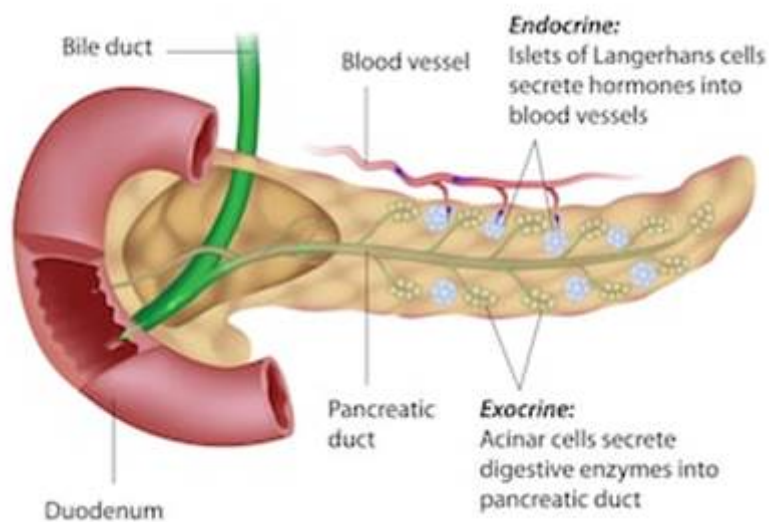
Pituitary, thyroid, adrenal, pancreas, testes and ovary. From the glands listed above one gland acts both as exocrine and endocrine. Name it.

### Answer

Pancreas.

Reason- It can act both as exocrine and endocrine gland. Exocrine cells secrete digestive enzymes. Endocrine cells secrete glucagon and insulin hormone.

The diagram shows the structure of pancreas. Pancreas can act as both endocrine and exocrine gland.



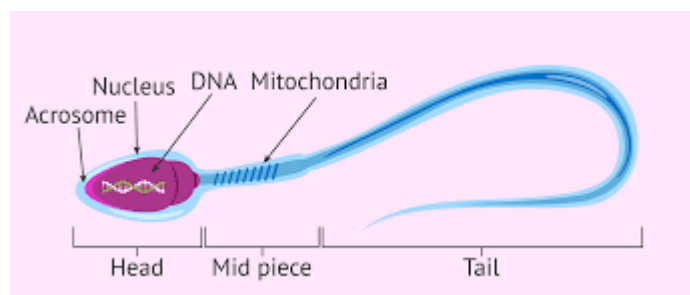
### 6. Question

The human sperm consists of head, middle piece and tail. What purpose does the tail in a sperm serve?

### Answer

The tail part of the sperm helps in the movement of the sperm towards the egg to carry out fertilization.

Diagram showing structure of a human sperm. The structure is divided into head, mid piece, and tail part.



### 7. Question

Babu heard his mother and aunty talking about his cousin who is going to have a baby; they were discussing whether she would give birth to a boy or

girl,

- a. Will it be possible to judge the sex of the child by them?
- b. What makes the fertilized egg develop either into a boy or a girl?

**Answer**

A. No, it is not possible to judge the sex of the child because **there are only 50% chances that the baby could be a boy the other 50% chances says that the baby could be a girl also!**

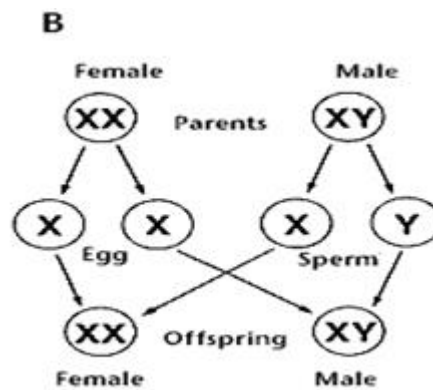
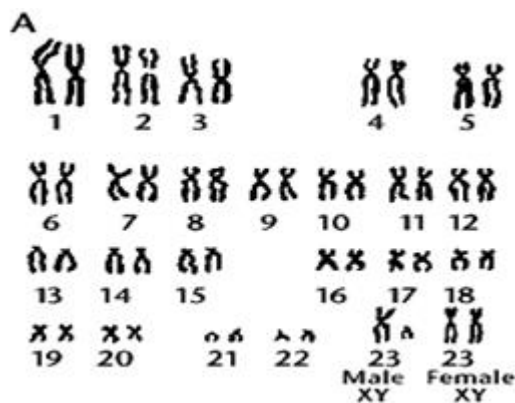
B. The total number of chromosome in human body is 46. During the period of gamete formation, this number gets reduced to half i.e. 23 chromosomes. 22 chromosomes are similar in males and females. These 22 chromosomes are known as autosomes. The 23<sup>rd</sup> chromosome is known as the sex chromosome as it determines the sex of the human. Females have 'XX' chromosome, while, males have 'XY' chromosome.

When a sperm containing 'X' chromosome fertilizes the egg, the zygote will have 'XX' chromosome and the egg develops into a girl.

When a sperm containing 'Y' chromosome fertilizes the egg, the zygote will have 'XY' chromosome and the egg will develop into a boy.

Diagram showing(A). 23 pair of chromosomes in humans.

(B). Sex determination in humans through chromosome



**Project Work**

**1. Question**

How many of your classmates are doing exercises regularly and who do not exercise regularly? Did you notice any difference in their fitness and health? Prepare a chart on their benefits of regular exercise and fix it in your classroom.

**Answer**

A list of students doing exercise regularly and who do not exercise is to be prepared

The students are exercising daily will more healthy and fit than those who don't. Benefits of exercise are:-

- It stimulates the development of the muscles, bones and joints, as well as the heart and lungs.
- It helps children maintain a healthy weight.
- It gives them an opportunity to interact with other people and make friends.
- It can help children manage symptoms of anxiety and depression.
- It helps in fighting diseases by making our immune system strong.

## 2. Question

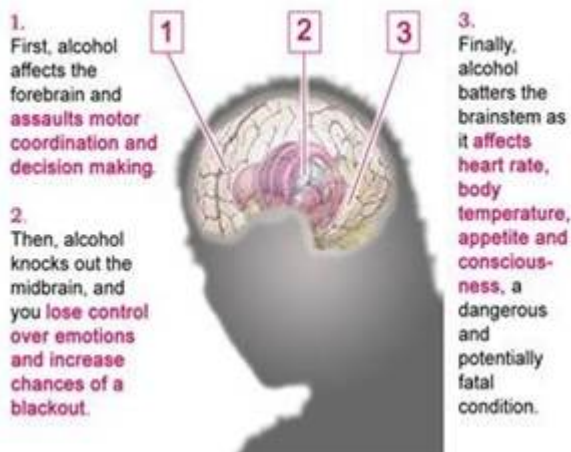
Collect information from newspapers, magazines and from the local health centre about the evil effects of cigarettes and alcohol. Prepare a chart and display it permanently in your classroom..

## Answer



## HOW ALCOHOL ATTACKS THE BRAIN

A guide to the sequential damage alcohol inflicts on neural tissue



## 3. Question

Prepare a colourful poster on the theme, 'Say No to Drugs'.

**Answer**

