

# 6.6 Hormones, Homeostasis & Reproduction

## Question Paper

Course	DP IB Biology
Section	6. Human Physiology
Topic	6.6 Hormones, Homeostasis & Reproduction
Difficulty	Hard

**Time allowed:** 10  
**Score:** /5  
**Percentage:** /100

## Question 1

Which of the following statements about melatonin are correct?

- I. Melatonin secretion increases in the evening in response to darkness and decreases at dawn in response to light.
- II. Increasing melatonin levels stimulate the body, preparing it for waking up and staying awake during the day.
- III. Melatonin is secreted by the hypothalamus.
- IV. The night-time drop in core body temperature triggers an increase in melatonin secretion.
- V. Melatonin levels vary during a 12-hour cycle known as a circadian rhythm.

- A. II, IV and V
- B. I, III and IV
- C. I only
- D. II and V

[1 mark]

## Question 2

Which of the statements below describe the hormone leptin?

- I. This hormone is secreted by fat storage cells known as adipose cells.
- II. This hormone's main role is to regulate the basal metabolic rate.
- III. This hormone circulates in the blood and targets groups of cells in the hypothalamus.
- IV. This hormone targets almost all cells in the body.
- V. A deficiency in this hormone can lead to weight gain despite the loss of appetite.

- A. I and V
- B. I and III
- C. II, IV and V
- D. I, III and V

[1 mark]

### Question 3

Four hormones all interact to control the menstrual cycle via both negative and positive feedback.

Which of the below is an example of a negative feedback mechanism that occurs during the menstrual cycle?

- A. Progesterone inhibiting oestrogen
- B. Oestrogen inhibiting luteinizing hormone
- C. Follicle stimulating hormone inhibiting oestrogen
- D. Oestrogen inhibiting follicle stimulating hormone

[1 mark]

### Question 4

Identify the set of images that correctly shows follicle development during the course of the menstrual cycle.



[1 mark]

**Question 5**

Which of the following statements is the most biologically correct?

- A. The SRY gene codes for TDF, which inhibits the expression of further genes responsible for the development of ovaries, causing the foetal gonads to develop into testes.
- B. The SRY gene codes for TDF, which stimulates the expression of further genes responsible for the development of testes, causing the foetal gonads to develop into testes.
- C. The TDF gene codes for SRY, which stimulates the expression of further genes responsible for the development of testes, causing the foetal gonads to develop into testes.
- D. The SRY gene codes for TDF, which inhibits the expression of further genes responsible for the development of testes, causing the foetal gonads to develop into ovaries.

[1 mark]