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**SUPPLEMENTARY EXAMINATION**

**PROGRAMME** : HUMAN MOVEMENT STUDIES

**MODULE NAME** : ANATOMY AND PHYSIOLOGY

**MODULE CODE** : ANP 01B1

**DATE** : 8 JANUARY 2018

**DURATION** : 2 HOURS

**TOTAL MARKS** : 100

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**NUMBER OF PAGES** : FIVE (5) PAGES

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**INSTRUCTIONS TO CANDIDATES:**

**ANSWER ALL THE QUESTIONS.**

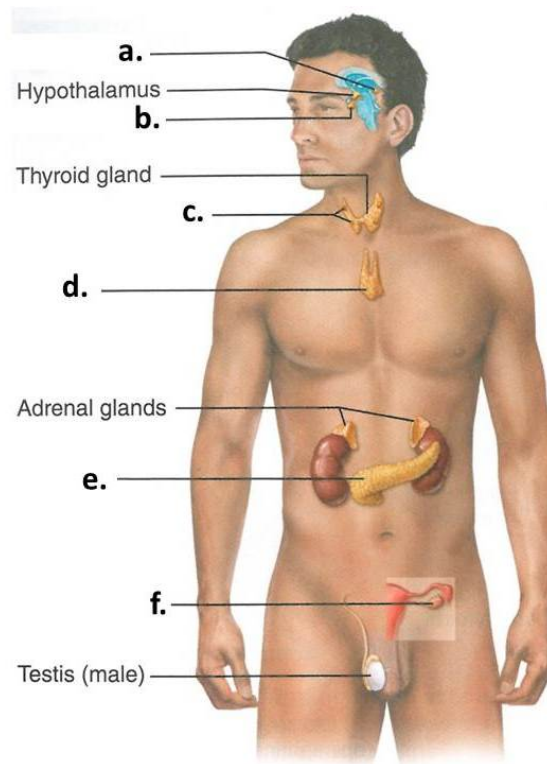
**SECTION A IS RENAL AND ENDOCRINE PHYSIOLOGY.**

**SECTION B IS HEMATOLOGY, BUFFER SYSTEMS AND DIGESTION.**

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## **SECTION A: RENAL AND ENDOCRINE PHYSIOLOGY (50 MARKS)**

### **QUESTION 1 (10 MARKS)**



1.1 Identify the major endocrine glands labelled a.) to f.) [6]

1.2 List the hormones produced by the organ labelled e.) and discuss their general functions. [4]

### **QUESTION2 (10 MARKS)**

State whether the following is true or false.

- 2.1 The urethra is a single tube which is 25 to 30 cm long.
- 2.2 Urine flows through the ureters by means of peristalsis.
- 2.3 The bladder wall contains three layers of smooth muscle, collectively called the *detrusor muscle*.
- 2.4 The maximum capacity of the bladder is 800 to 1000 ml.
- 2.5 When the bladder is collapsed, it is 12 cm long.
- 2.6 The male urethra is 3 to 4 cm long.
- 2.7 The female urethra is 20 cm long, and has three regions.
- 2.8 The internal urethral sphincter is voluntary.
- 2.9 The external urethral sphincter is involuntary.
- 2.10 The ureter transports urine from the kidneys to the body exterior.

### **QUESTION 3 (10 MARKS)**

Match the term in column A with the correct description in column B:

COLUMN A	COLUMN B
1. Antidiuretic hormone	a. The process of lipid soluble Hormones diffusing through a plasma membrane, entering the nucleus and binding to a specific hormone receptor
2. Abnormal urinary constituents	b. Hormone released when blood calcium levels are too high
3. Parathyroid hormone	c. Stimulates powerful uterine contractions during childbirth. Also an example of positive feedback.
4. Ureter	d. Glucose, hemoglobin
5. Oxytocin	e. Hormone released when blood calcium levels are too low
6. Tubular reabsorption	f. Hydrogen ions, potassium ions, creatinine and drugs are removed from the peritubular blood
7. Calcitonin	g. Water, glucose, amino acids, and needed ions are transported out of the filtrate into the tubule cells
8. Normal urinary constituents	h. Prevents or inhibits urine production
9. Direct Gene Activation	i. Sodium, ammonia
10. Tubular secretion	j. Slender tube transporting urine from the kidney to the bladder

**QUESTION 4 (7 MARKS)**

Complete the table: Name the routes whereby water can enter (3) and leave the body (4). [7]

Average input per day	Average output per day
a.)	d.)
b.)	e.)
c.)	f.)
	g.)

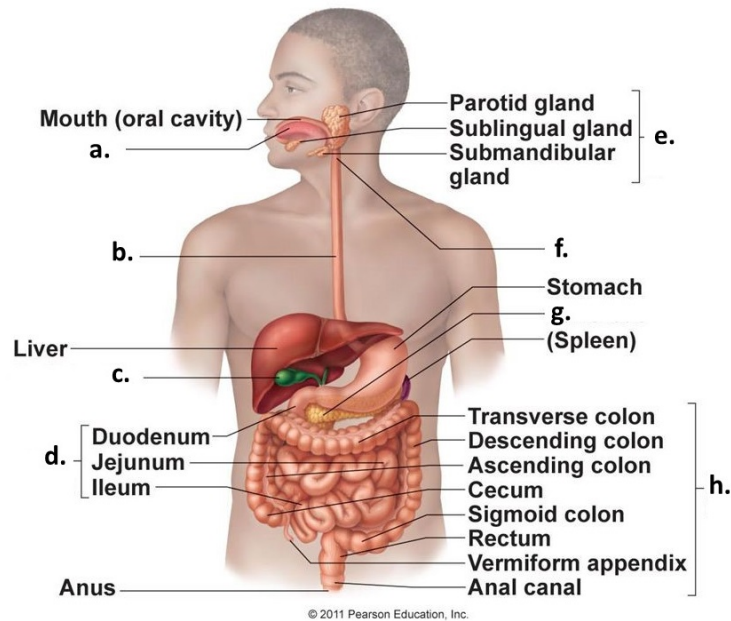
**QUESTION 5 (13 MARKS)**

5.1 List seven (7) functions of the kidney. [7]

5.2 Explain how various endocrine glands are stimulated to release their hormonal products. (Hint: stimuli) [6]  
[50]

## **SECTION B: HEMATOLOGY, BUFFER SYSTEMS AND DIGESTION** **(50 MARKS)**

### **QUESTION 1 (14 MARKS)**



1.1 Identify the digestive organs labelled a.) to h.) [8]

1.2 List and locate three (3) hormones that act in digestion. [6]

### **QUESTION 2 (8 MARKS)**

1.1 List the cell types making up the formed elements, and describe the major functions of each type. [6]

1.2 Name two (2) main buffer systems in the body. [2]

### **QUESTION 3 (10 MARKS)**

2.1 Identify five (5) factors inhibiting the formation of blood clotting. [5]

2.2 Identify five (5) factors that cause undesirable blood clotting. [5]

### **QUESTION 4 (8 MARKS)**

Tabulate the ABO blood groups. [8]

Group	Have	Get blood from
A	a.)	b.)
B	c.)	d.)
AB	e.)	f.)
O	g.)	h.)

**QUESTION 5 (10 MARKS)**

Please state whether the following is true or false.

- 5.1 Blood exits the heart via the arteries.
- 5.2 Coagulation is commonly referred to as blood clotting.
- 5.3 Leukocytes are red blood cells.
- 5.4 Fibrinolysis is known as the formation of blood clots.
- 5.5 50% of water leaving the body does so by means of urination.
- 5.6 Electrolytes dissociate in water.
- 5.7 The extracellular fluid is composed of interstitial fluid and blood plasma.
- 5.8 The three main functions of blood is transport, regulation and temperature.
- 5.9 A thrombus is a clot that breaks away and floats freely in the bloodstream.
- 5.10 Catabolism is defined as the breakdown of large molecules into smaller ones.

**TOTAL: 100 MARKS**