NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_ADM NO: \_\_\_\_\_\_\_\_\_\_\_\_CLASS:\_\_\_\_\_\_\_\_\_\_

**DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ SIGN: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

MARKS HERE

**BIOLOGY FORM TWO**

**TERM 3, 2023**

**INSTRUCTIONS: answer all questions TIME: 1hr 30 mins**

1. Definethefollowingterms **(**4mks**)**

**a)**Excretion

**b)**Secretion

**c)**Egestion

2. Explain the role of insulin in blood glucose regulation. (2 marks)

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3. Name **three** methods by which plants eliminate their waste. (3 marks)

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4. In an investigation two people M and N drunk some amount of strong glucose solution. Their blood sugar levels were immediately determined and thereafter at one hour intervals for the next six hours. The results were shown in the table below.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Time (hours) |  | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Glucose level in mg/100ml of blood | Person M | 90 | 220 | 160 | 110 | 100 | 100 | 90 |
| Person N | 110 | 340 | 320 | 300 | 260 | 245 | 215 |

a) In the grid provided, plot a graph for the blood glucose level against time for person M and N. (7 marks)

b) In man the normal blood sugar level is about 90ml/100ml of blood. Explain the change in the sugar level in person M during.

i) The first 4 hours. (2marks)

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ii) The 6th hour. (2marks)

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c) i) Suggest a possible reason for the high blood sugar in person N. (1mark)

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ii) How can the high blood sugar in person N be controlled. (1 mark)

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d) The pancreas and the liver work together in the regulation of glucose in the blood.

i) State the role of these organs when the concentration of glucose in blood is below normal. (2mks)

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ii) What would be the effect of removing the pancreas from the body? (1 mark)

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iii) Listexcretoryorgans ofmammals **(**4mks**)**

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4.Statethestructuralmodificationofnephroninthedesertmammals**. (**2mks**)**

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5. Name the hormone responsible for ;( 4mks)

a) Conversion of glycogen to glucose.

b) Conversion of excess glucose to glycogen

c) Reabsorption of sodium ions

d) Reabsorption of water in the kidney tubules

7. The table below compares the approximate concentration of certain substances in plasma glomeruli filtrate and urine.

|  |  |  |  |
| --- | --- | --- | --- |
| Substance | % in plasma | Glomerular filtrate | % urine |
| Water | 90 | 90 | 94 |
| Protein | 6.5 | 0 | 0 |
| Urea | 0.03 | 0.03 | 1.8 |
| Glucose | 0.1 | 0.1 | 0 |

(a) Account for the absence of

(i)Glucose in urine. (1mk)

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(ii) Protein in glomerular filtrate. (1mk)

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(b). What hormone controls the concentration of urine produced in the kidneys? (1 mk)

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Where is it produced? (1mk)

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8.State the functions of the liver. (4mks)

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9.Explain why students tend to visit the latrines more frequently on cold days than on hot days. **(**2mks**)**

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10. Name one kidney diseases. (1mk)

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From the diagram above;

A. Name the fluid found in the part labeled Q and the process by which it’s formed (2mks) ………………………………………………………………………………………………….

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b). which two hormones that exert their effect in the nephron? (2marks)

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