**GENERAL HUMAN BIOLOGY – YEAR 11**

**TASK 4 – DIGESTIVE SYSTEMS RESEARCH EXTENDED RESPONSE**

**NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ WEIGHTING: 10%**

**DUE DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ MARK = \_\_\_ /48**

**Part A - Digestive Disorders Research**  **(12 marks)**

The speed with which material is moved through the alimentary canal for absorption depends on the size and contents of a meal. Large meals or high amount of particular mineral in meals can contribute to digestive disorders which require treatments.

1. Complete the table on various digestive disorders.
2. Select one of the disorders to complete an in-depth study on.
3. Research the list of questions and create one A4 page of notes (2-sided).

**Part B – Validation and Gunshot Wound Comprehension**  **(36 marks)**

Read through a passage on the study of the digestive system, interpret the information provided and use the text to answer comprehension questions.

1. Complete the following table on various digestive disorders: [8 marks]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Digestive disorders** | **Definition** | **Main causes** | **Signs and Symptoms** | **Treatments** |
| **Constipation** |  |  |  |  |
| **Diarrhoea** |  |  |  |  |
| **Bowel cancer** |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Digestive disorders** | **Definition** | **Main causes** | **Signs and Symptoms** | **Treatments** |
| **Ulcers** |  |  |  |  |
| **Gallstones** |  |  |  |  |
| **Coeliac Disease** |  |  |  |  |

1. From the list of digestive disorders in the previous table, choose one to complete an in-depth study on. [4 marks]

You need to include the following information in your research

* Name the disease
* How does the disorder affect the efficiency of the digestive system
* Explain the importance of early detection, use of drugs, physical therapy, radiation therapy and/or removal/replacement of the affected organ
* Do lifestyle choices affect the functioning of the digestive system with your disorder eg. activity levels, use of drugs, diet, vaccinations
* Include a detailed copy of your references/bibliography
* Presentation, clarity and accuracy of information submitted

Students can choose how they are to present the information to be submitted, eg. Brochure, Poster, PowerPoint Presentation or any other appropriate method.

1. Questions to create notes about:
   1. What is required for a healthy diet?
   2. What is the importance of fibre and water in your diet?
   3. What happens to the body if you have a poor diet?
   4. Why is a good diet necessary for digestion?
   5. Digestive disorders linked to poor diet, explain how?
   6. Do different foods absorb at different rates?
   7. How does the absorption of alcohol compare to the absorption of food?
   8. If you consume food and alcohol together, does it change the rate of absorption?

**Part B – Validation and Gunshot Comprehension (36 Marks)**

***Validation – Notes are allowed in this section. [19 Marks]***

1. Although alcohol is absorbed in the stomach, it is absorbed much more rapidly in the small intestine.

1. Suggest why alcohol is much slower to affect a person’s mood when consumed with a meal.

(3 marks)

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1. Would the nature of the meal, for example, a meal high in carbohydrate compared with a meal high in fat, have any influence on alcohol absorption? Explain. (4 marks)

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2. Discuss how eating a diet rich in fiber and drinking plenty of water help maintaining a healthy digestive tract. (3 marks)

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3. In the last few years, research has been directed at looking at the effect of diet and digestion.

1. List and discuss problems that can result from poor diet. (3 marks)

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1. List and discuss other problems that may occur in the digestive system that are not results of poor diet. (3 marks)

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4. How do healthy foods aid digestion? (3 marks)

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***Background information [17 marks]***

Our current information about how our body works comes from a variety of sources. Early in the history of medicine, doctors used to study the fluids produced. Surgeons autopsied the recently dead to try to find out why they died. Chemists looked for changes in the body chemicals. In the current technological age, there are machines that can produce images of our insides. Information can come from other sources too.

* Read the story of how Army doctor William Beaumont tended the accidental shotgun wound that perforated the abdominal wall and stomach of Alexis St. Martin on June 6 1822.
* Answer the questions that relate to the story

1. During the 1800’s people debated how the stomach digested food. What were the three theories of the time? (3 marks)

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1. When St. Martin’s stomach wall healed it formed a valve. What is a valve? (1 mark)

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1. Why did the valve open when St. Martin ate too much? (1 mark)

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1. How did Beaumont initially research the digestion that occurs in the stomach? (2 marks)

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1. Before the work Beaumont undertook to research the gastric juices of the stomach, how would other medical professionals have studied the stomach’s action? (2 marks)

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1. We now know a lot about the gastric juices of the stomach. What are the main components of gastric juice? (2 marks)

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1. Today we are able to investigate the action of the stomach and associated organs without opening the abdomen. What methods are used? (1 mark)

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1. Why do you think it took nearly two years for the initial wounds that St. Martin suffered to heal?

(1 mark)

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1. Why do you think Beaumont only gave St. Martin 36 hours to live after he treated him? (2 marks)

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1. Who do you consider contributed the most to the understanding of the stomach’s actions – William Beaumont or Alexis St. Martin? Explain your choice. (2 marks)

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