**Year 12 Human Biology**

**Unit 3 Response to infection**

**ER VACCINES VALIDATION**

**NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_TOTAL /58**

1. Define Covid-19 (2 marks)

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1. Name the genus and family of COVID-19 (1 mark)

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1. In what year was SARS COV 2 first identified? Where (what city) was it discovered? (2 marks)

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1. Name the animal that SARS COV 2 is believed to have come from and how it is transmitted from this animal host to humans?  (2 marks)

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1. Which organs of the human body does COVID-19 most affect?  (2 marks)

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1. COVID-19 affects different people in different ways. Most infected people will develop mild to moderate illness and recover without hospitalisation. List 3 symptoms of Covid-19. (3 marks)

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1. For those infected with covid, the highest mortality is recorded amongst what groups of people/ individuals? (2 marks)

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1. At the time of the article how many cases and mortality had resulted from Covid-19? (1 mark)

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1. Why is COVID-19 so much more contagious than previous COVID-like diseases? (2 marks)

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1. Define what is a vaccine and explain how they bring about increased immunity. (7 marks)

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1. The development of a vaccine typically takes between 10-15 years to be ready for clinical testing. However, the first vaccine for Covid-19 was ready for testing in many months. How was this made possible and why do you think there was an urgency for the vaccine to be developed? (3 marks)

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1. a) In the development of COVID-19 vaccines, what unique identifier of the coronavirus is being used as a target for vaccine development?  (1 mark)

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b. Explain why this is the target. OR How does the SI subunit allow the virus to enter the cell (2 marks)

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1. Describe the 3 methods of vaccine development from the article and how they differ from one another. (6 marks)

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1. What is the potential public health risk of an inactivated coronavirus vaccine?  (1 mark)

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1. What are the safety concerns of using the live-attenuated vaccine?   (2 marks)

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1. Why was recombinant DNA more advantageous over the other 2 vaccines? (1 mark)

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1. There are 5 types of Recombinant COVID-19 vaccines outlined in this paper. Briefly outline why they all fall under this category of vaccine. (2 marks)

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1. The 3 main vaccines approved for use today are Pfizer, AstraZeneca and Novavax. All have been developed using different methods of technology. Complete the following table: (3 marks)

|  |  |
| --- | --- |
| Approved Vaccine | Method of technology used |
| Pfizer |  |
| AstraZeneca |  |
| Novavax |  |

1. Which is more advantageous and why: mRNA or DNA based recombinant vaccines? (3 marks)

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1. What is needed to confirm safety of a vaccine (2 marks)

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1. Quick disappearance of antibody response is a major issue with COVID-19 vaccines. Why is this a problem and how are they combatting it? (2 marks)

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1. Which vaccine do you think will be the most successful vaccine and what evidence supports this? (4 marks)

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1. Describe one socio-cultural and one economic factor that influence whether or not parents choose to have their children immunised. (2 marks)

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