

## Subject 17

**Please, do not write on the exam paper.**

Let us consider the following text, from "Statistics. A graphic guide", from Eileen Magnello and Borin Van Loon, published by Icon Books Ltd:

### **Malthusian Populations**

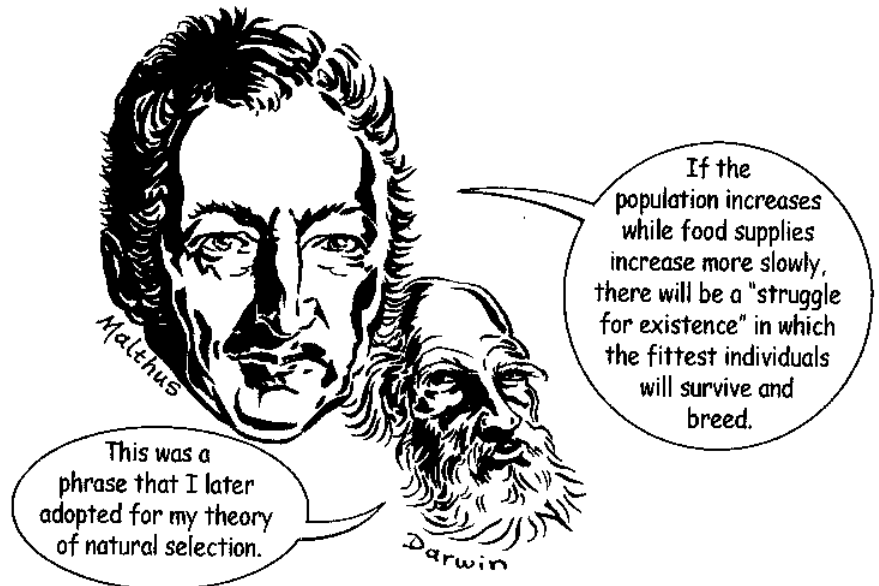
“While various commentators tried to determine the population of a country of the world, the economist **Thomas Robert Malthus** (1766-1834) argued in his celebrated work *An Essay on the Principle of Population* (1798) that unchecked human populations would always exceed the means of subsistence, and that human improvement depended on *stern limits* on reproduction.

Malthus believed that populations would increase exponentially (2, 4, 8, 16, 32, etc...), whereas food supplies would increase mathematically (2, 4, 6, 8, 10, etc...).

Malthus' hypothesis implied that the actual population would always have a tendency to push above the food supply.”

### Nota :

*stern limits* : limites strictes.



### Questions

**1.a)** Supposing that there were 8 million people in the United Kingdom in 1800, and each year the population increased by 2%, find a sequence to represent the population in the following years.

**1.b)** Explain the phrase "populations would increase exponentially".

**2)** Supposing that the total farming production fed 10 million people in 1800, and every year improvements allowed to feed 400,000 more people, find a sequence to represent the farming production in the following years.

**3)** Using your calculator, determine the year when English farming won't be able to provide enough food for the whole population.