

**Subject 16**

**PROBABILITY**

*Please do not write on this exam paper and give it back at the end of the test*

An automobile manufacturer produces 37% of its cars at plant\* A , 20% of its cars at plant B and the rest at plant C. 5% of the cars manufactured at plant A have defective emission control devices\*\*. At plant B, the rate is 3%, and at plant C, the rate is 4%. A single car made by this manufacturer is selected at random.

Let D be the event “the chosen car has defective emission control device”

Let A be the event “the chosen car has been manufactured at plant A”.

Let B be the event “the chosen car has been manufactured at plant B”.

Let C be the event “the chosen car has been manufactured at plant C”.

1) a. What is the probability that the car has a defective emission control device given that it was manufactured at plant B?

b. What is the probability that the car does not have a defective emission control device given that it was manufactured at plant A?

2) What is the probability that the car has a defective emission control device ?

3) We choose a car that has a defective emission control device. What is the probability that this car has been manufactured at plant C ? ( Round your result to the nearest hundredth )

Vocabulary :

\*plant = factory

\*\*defective emission control device: système de contrôle d'émission (de particules) défectueux