③

Run No.	Person	Bus	Catches (1/0)
1	7:10	7:05	0
2	7:20	7:20	1
3	7:15	7:25	1
4	7:30	7:20	0
5	7:30	7:15	0
6	7:05	7:00	0
7	7:20	7:25	1
8	7:00	7:10	1
9	7:10	7:30	1
10	7:15	7:10	0
			5

(a) Probability person catches the bus $= \frac{5}{10} = 0.5$ //

(b) Let us say that the arrival times are

numbered 1 to 7.

Theoretical probability $= \left(P_{person}(1) \times 1\right) + \left(P_{person}(2) \times P_{bus}^{(2:7)}\right)$
$+ \ldots + \left(P_{person}(7) \times P_{bus}(7)\right)$

$= (0.05 \times 1) + (0.1 \times 0.9) + (0.15 \times 0.75)$
$+ (0.2 \times 0.55) + (0.25 \times 0.3) + (0.15 \times 0.15)$
$+ (0.1 \times 0.05)$

$= 0.05 + 0.09 + 0.1125 + 0.1100$
$+ 0.075 + 0.0225 + 0.005$

$= 0.465$