

a examination consists of 8 questions in each of which one of 5 alternative is the correct one. on the assumption that a candidate who has done no preparatory work chooses for each question any one of the five alternative with equal probability , the probability that he gets more than one correct ans is equal to?

There are 3 possibilities:

- 1) he gets no correct answers
- 2) he gets one correct answer
- 3) he gets more than one correct answer

Therefore:

$$P(> 1) + P(1) + P(0) = 1$$

probability that he gets more than one correct answer equals:

$$P(> 1) = 1 - P(1) - P(0)$$

$P(1)$  - probability that he gets one correct answer

$P(0)$  - probability that he gets no correct answers

$$P(0) = \left(\frac{4}{5}\right)^8$$

$\frac{4}{5}$  - probability that he gets wrong answer for 1 question, 8 – number of questions

$$P(1) = 8 \left(\frac{4}{5}\right)^7 \frac{1}{5}$$

$\frac{1}{5}$  - probability that he gets correct answer for 1 question, 7 - number of “wrong” questions,

8 – number of possibilities to get 1 correct answer ( 8 questions)

$$P(> 1) = 1 - 8 \left(\frac{4}{5}\right)^7 \frac{1}{5} - \left(\frac{4}{5}\right)^8 = \frac{194017}{390625} \approx 0.5$$

$$\text{Answer: } P(> 1) = \frac{194017}{390625} \approx 0.5$$