Assignment 7

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Download all python codes from

https://github.com/Dishank422/AI1103−Probability−and−random−variables/blob/main/Assignment_7/codes

and latex-tikz codes from

https://github.com/Dishank422/AI1103−Probability−and−random−variables/blob/main/Assignment_7/main.tex

1 Problem

(Gate 2015 ME set-2, Q. 26) The chance of a student passing an exam is 20%. The chance of a student passing the exam and getting above 90% marks is 5%. GIVEN that a student passes the examination, the probability that the student gets above 90% marks is

a). $\frac{1}{18}$ c). $\frac{1}{4}$

b). $\frac{2}{9}$ d). $\frac{5}{18}$

2 Solution

Let A be the event that the student passes the exam and B be the event that the student gets above 90% in the exam. Thus we need to find $\Pr(B|A)$. We are given

$$\Pr(A) = \frac{1}{5} \tag{2.0.1}$$

$$\Pr(AB) = \frac{1}{20} \tag{2.0.2}$$

Thus required probability

$$= \Pr(B|A) \tag{2.0.3}$$

$$= \frac{\Pr(AB)}{\Pr(A)} \tag{2.0.4}$$

$$= \frac{1}{4} \tag{2.0.5}$$

Thus option B is the correct option.