

# Assignment 7

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Download latex-tikz codes from

[https://github.com/Dishank422/AI1103-Probability  
-and-random-variables/blob/main/  
Assignment\\_7/main.tex](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

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

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

Thus required probability

$$= \Pr(B|A) \quad (2.0.3)$$

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

$$= \frac{1}{4} \quad (2.0.5)$$

Thus option B is the correct option.