

75. Solution: A

Let  $X$  and  $Y$  be the monthly profits of Company I and Company II, respectively. We are given that the pdf of  $X$  is  $f$ . Let us also take  $g$  to be the pdf of  $Y$  and take  $F$  and  $G$  to be the distribution functions corresponding to  $f$  and  $g$ . Then  $G(y) = \Pr[Y \leq y] = P[2X \leq y] = P[X \leq y/2] = F(y/2)$  and  $g(y) = G'(y) = d/dy F(y/2) = \frac{1}{2} F'(y/2) = \frac{1}{2} f(y/2)$ .