

102. Solution: E

Let  $X$  and  $Y$  denote the times that the two backup generators can operate. Now the variance of an exponential random variable with mean  $\beta$  is  $\beta^2$ . Therefore,

$$\text{Var}[X] = \text{Var}[Y] = 10^2 = 100$$

Then assuming that  $X$  and  $Y$  are independent, we see

$$\text{Var}[X+Y] = \text{Var}[X] + \text{Var}[Y] = 100 + 100 = 200$$