

Q.3  $P \sim \text{Uniform}(0, 3)$

$3-P$  also has the same distribution as  $P$  i.e.  $3-P \sim \text{Uniform}(0, 3)$

$$E[Q] = E \left[ \log \left( \frac{P}{3-P} \right) \right]$$

$$= E [\log(P) - \log(3-P)]$$

$$= E[\log(P)] - E[\log(3-P)]$$

(By linearity of Expectations)

$$= \underline{\underline{0}}$$