Question 10.13.2.6
Probability and Random Processes

Padala Sai Kowshik
EE22BTECH11038*

Question 10.13.2.6:
A game consists of spinning an arrow which comes to rest pointing at one of the regions (1, 2 or 3) (Fig. 13.1). Are the outcomes 1, 2 and 3 equally likely to occur? Give reasons.

Solution:
Let, Probability of the arrow resting in region A = $\Pr(A)$

$$\Pr(A) = \frac{\text{Angle covered by A}}{\text{Total angle}} \tag{1}$$

$$\therefore \Pr(1) = \frac{90^\circ}{360^\circ} = \frac{1}{4} \tag{2}$$

$$= 0.25 \tag{3}$$

$$\Pr(2) = \frac{90^\circ}{360^\circ} = \frac{1}{4} \tag{4}$$

$$= 0.25 \tag{5}$$

$$\Pr(3) = \frac{180^\circ}{360^\circ} = \frac{1}{2} \tag{6}$$

$$= 0.5 \tag{7}$$

$\Pr(1)$, $\Pr(2)$ & $\Pr(3)$ are not all equal. Therefore, they are not equally likely to occur.