

UNIT 6 QUESTIONS 16-20

SPEED TIME

2009B

18. **Answer (C):** After 10 min. = 600 sec., Rachel will have completed 6 laps and be 30 seconds from the finish line. Because Rachel runs one-fourth of a lap in 22.5 seconds, she will be in the picture taking region between

$$30 - \frac{22.5}{2} = 18.75 \quad \text{and} \quad 30 + \frac{22.5}{2} = 41.25$$

seconds of the 10th minute. After 10 minutes Robert will have completed 7 laps and will be 40 seconds from the starting line. Because Robert runs one-fourth of a lap in 20 seconds, he will be in the picture taking region between 30 and 50 seconds of the 10th minute. Hence both Rachel and Robert will be in the picture if it is taken between 30 and 41.25 seconds of the 10th minute. The probability that the picture is snapped during this time is

$$\frac{41.25 - 30}{60} = \frac{3}{16}.$$