In a Screw Gauge, fifth division of the circular scale coincides with the reference line when the ratchet is closed. There are 50 divisions on the circular scale, and the main scale moves by 0.5 mm on a complete rotation. For a particular observation the reading on the main scale is 5 mm and the 20th division of the circular scale coincides with reference line. Calculate the true reading.

A 5.00 mm

B 5.25 mm

C 5.15 mm

D 5.20 mm

Explanation

Least count (L. C.) = $\frac{0.5}{50}$

True reading = $5 + \frac{0.5}{50} \times 20 - \frac{0.5}{50} \times 5$

$= 5 + \frac{0.5}{50}(15) = 5.15$ mm