Question 7)The diameter of a cylinder is measured using Vernier callipers with no zero error. It is found that the zero of the Vernier scale lies between 5.10 cm and 5.15 cm of the main scale. The Vernier scale has 50 divisions equivalent to 2.45 cm. The 24th division of the Vernier scale exactly coincides with one of the main scale divisions. The diameter of the cylinder is :

(A) 5.112 cm

(B) 5.124 cm

(C) 5.136 cm

(D) 5.148 cm

Answer: (B) 5.124 cm

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Solution:

The readings on the main scale are 5.10 and 5.15

1 main scale divisions = 0.05 cm

1 vernier scale division, = 2.45/50 = 0.049 cm/div

Least count = 0.05 – 0.049 = 0.001 cm

Diameter = MSR + (L.C x VSD)

= 5.10 + (24 x 0.001)

= 5.124 cm