

JEE MAIN UNITS AND MEASUREMENTS — LEAST COUNT, VERNIER CALLIPERS AND SCREW GAUGE — PYQS

Max. Marks: 32
Questions: 8

Section A (MCQ) — 7 questions

- Q.1** In a Vernier calipers, when both jaws touch each other, zero of the Vernier scale is shifted to the right of zero of the main scale and 7th Vernier division coincides with a main scale reading. If the value of 1 main scale division is 1 mm and there are 10 Vernier scale divisions, then the Vernier caliper has

[JEE Main 2026 (Online) 5th April Morning Shift]

- (1) 0.07 cm negative zero error
 (2) 0.7 cm negative zero error
 (3) 0.07 cm positive zero error
 (4) 0.7 cm positive zero error

Scan or tap for the full solution



- Q.2** In a screw gauge when the circular scale is given five complete rotations it moves linearly by 2.5 mm. If the circular scale has 100 divisions, the least count of screw gauge is _____ mm.

[JEE Main 2026 (Online) 4th April Morning Shift]

- (1) 1×10^{-2} (2) 1×10^{-3} (3) 5×10^{-2} (4) 5×10^{-3}

Scan or tap for the full solution



- Q.3** In a screw gauge the zero of main scale reference line coincides with the fifth division of the circular scale when two studs are in contact. There are 100 divisions in circular scale and pitch of screw gauge is 0.1 mm. When diameter of a sphere is measured, the reading of main scale is 5 mm and 50th division of circular scale coincides with the reference line of main scale. The diameter of sphere is _____ mm.

[JEE Main 2026 (Online) 2nd April Evening Shift]

- (1) 5.045 (2) 5.055 (3) 5.450 (4) 5.550

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- Q.4** In an experiment, a set of readings are obtained as follows: 1.24 mm, 1.25 mm, 1.23 mm, 1.21 mm. The expected least count of the instrument used in recording these readings is _____ mm.

[JEE Main 2026 (Online) 28th January Evening Shift]

- (1) 0.01 (2) 0.05 (3) 0.001 (4) 0.1

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- Q.5** When both jaws of vernier callipers touch each other, zero mark of the vernier scale is right to zero mark of main scale, 4th mark on vernier scale coincides with certain mark on the main scale. While measuring the length of a cylinder, observer observes 15 divisions on main scale and 5th division of vernier scale coincides with a main scale division. Measured length of cylinder is _____ mm. (Least count of Vernier calliper = 0.1 mm)

[JEE Main 2026 (Online) 28th January Morning Shift]

- (1) 15.5 (2) 15.4 (3) 15.9 (4) 15.1

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- Q.6** In a vernier callipers, 50 vernier scale divisions are equal to 48 main scale divisions. If one main scale division = 0.05 mm, then the least count of the vernier callipers is _____ mm.

[JEE Main 2026 (Online) 24th January Evening Shift]

- (1) 0.002 (2) 0.02 (3) 0.05 (4) 0.005

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- Q.7** In a screw gauge, the zero of the circular scale lies 3 divisions above the horizontal pitch line when their metallic studs are brought in contact. Using this instrument thickness of a sheet is measured. If pitch scale reading is 1 mm and the circular scale reading is 51 then the correct thickness of the sheet is _____ mm.

[Assume least count is 0.01 mm]

[JEE Main 2026 (Online) 23rd January Morning Shift]

- (1) 1.54 (2) 1.50 (3) 1.51 (4) 1.48

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Section B (Numerical) — 1 question

- Q.8** A tiny metallic rectangular sheet has length and breadth of 5 mm and 2.5 mm, respectively. Using a specially designed screw gauge which has pitch of 0.75 mm and 15 divisions in the circular scale, you are asked to find the area of the sheet. In this measurement, the maximum fractional error will be $\frac{x}{100}$ where x is _____.

[JEE Main 2025 (Online) 28th January Morning Shift]

Scan or tap for the
full solution



ANSWER KEY

Section A (MCQ) — 7 questions

Ques.	1	2	3	4	5	6	7				
Ans.	3	4	1	1	4	1	1				

Section B (Numerical) — 1 question

Ques.	8										
Ans.	3										