

## JEE MAIN MECHANICAL PROPERTIES OF FLUIDS — CAPILLARY RISE — PYQS

**Max. Marks: 12**
**Questions: 3**

### Section A (MCQ) — 3 questions

- Q.1** When a part of a straight capillary tube is placed vertically in a liquid, the liquid rises up to certain height  $h$ . If the inner radius of the capillary tube, density of the liquid and surface tension of the liquid decrease by 1% each, then the height of the liquid in the tube will change by \_\_\_\_\_ %.

[JEE Main 2026 (Online) 22nd January Evening Shift]

- (1) +3      (2) +1      (3) -1      (4) -3

Scan or tap for the full solution



- Q.2** Surface tension of two liquids (having same densities),  $T_1$  and  $T_2$ , are measured using capillary rise method utilizing two tubes with inner radii of  $r_1$  and  $r_2$  where  $r_1 > r_2$ . The measured liquid heights in these tubes are  $h_1$  and  $h_2$  respectively. [Ignore the weight of the liquid above the lowest point of meniscus]. The heights  $h_1$  and  $h_2$  and surface tensions  $T_1$  and  $T_2$  satisfy the relation :

[JEE Main 2026 (Online) 21st January Evening Shift]

- (1)  $h_1 > h_2$  and  $T_1 = T_2$       (2)  $h_1 < h_2$  and  $T_1 = T_2$   
 (3)  $h_1 > h_2$  and  $T_1 < T_2$       (4)  $h_1 = h_2$  and  $T_1 = T_2$

Scan or tap for the full solution



- Q.3** A capillary tube of radius 0.1 mm is partly dipped in water (surface tension 70 dyn/cm and glass water contact angle  $\approx 0^\circ$ ) with  $30^\circ$  inclined with the vertical. The length of water risen in the capillary is \_\_\_\_\_ cm. (Take  $g = 9.8 \text{ m/s}^2$ )

[JEE Main 2025 (Online) 7th April Evening Shift]

- (1)  $\frac{82}{5}$       (2)  $\frac{68}{5}$       (3)  $\frac{57}{2}$       (4)  $\frac{71}{5}$

Scan or tap for the full solution



### ANSWER KEY

| Ques. | 1 | 2 | 3 |  |  |  |  |  |  |  |  |
|-------|---|---|---|--|--|--|--|--|--|--|--|
| Ans.  | 2 | 2 | 1 |  |  |  |  |  |  |  |  |