

Hard

Deputy Executive Engineer (Electricity) - 2026

Public Works Authority of Gujarat / Assistant Engineer (Electrical)

$$\frac{1}{4 + j3}$$

- A

1, 2, 3, 4
- B

1, 2, 3, 4

Correct
- C

1, 2, 3, 4
- D

1, 2, 3, 4

Correct Answer: B

Full Detailed Explanation

Given: $\frac{1}{4 + j3}$; B - 1, 2, 3, 4 ; R = 4 ;
X = 3 ;
Magnitude = $\sqrt{4^2 + 3^2} = 5$;
Phase angle = $\tan^{-1} \frac{3}{4} = 36.87^\circ$;
Yeq = $\frac{1}{4 + j3} + \frac{1}{4 - j3} = \frac{4 - j3 + 4 + j3}{16 - (j3)^2} = \frac{8}{16 + 9} = \frac{8}{25} = 0.32 \text{ S}$; Zeq = $\frac{1}{\text{Yeq}} = 3.125 \Omega$;
I = $\frac{V}{\text{Zeq}} = \frac{1000}{3.125} = 320 \text{ A}$; PF = $\cos 0^\circ = 1$;