

31. (3)
32. (2)
33. (2)
34. (3)
35. (2)
36. (4)
37. (3)
38. (1)
39. (2)

$$I = MR^2 + 3\left(\frac{mR^2}{3}\right) = (M + m)R^2$$

40. (3)

For complete disc with mass $4M$, moment of inertia about given axis $= \frac{(4M)R^2}{2} = 2MR^2$

Hence, by symmetry for the given quarter of disc, moment of inertia about the axis passing through the centre of the original disc.

$$I = \frac{2MR^2}{4} = \frac{MR^2}{2} \Rightarrow I = \frac{MR^2}{2}$$

