

**14.9** The equation of motion of a particle is  $x = a \cos (\alpha t)^2$ .

The motion is

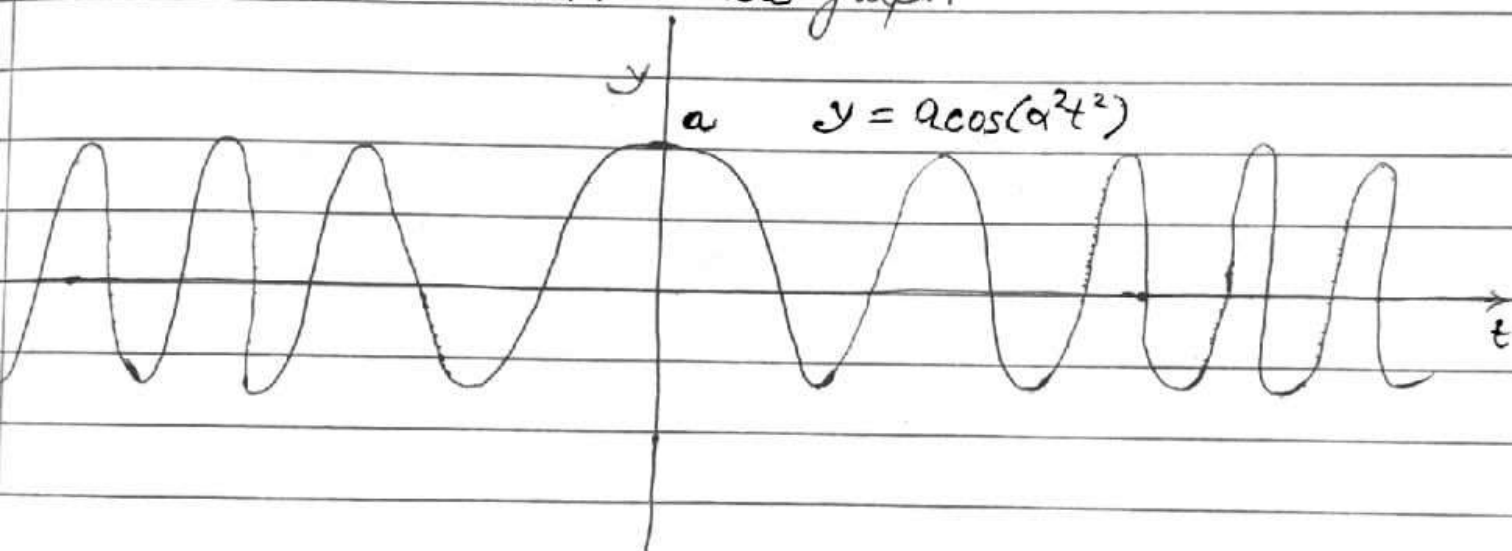
- (a) periodic but not oscillatory.
- (b) periodic and oscillatory.
- (c) oscillatory but not periodic.
- (d) neither periodic nor oscillatory.

## NCERT EXEMPLAR

SOLUTION:

Equation of Motion is  $x = a \cos(\alpha t)^2$

lets look at its graph



We can see that the graph is oscillatory but not periodic as ~~its~~ the time period for each cycle decreases as we move from  $t=0$  to  $t=\infty/-\infty$ .

So, correct option is (c) oscillatory but not periodic.

