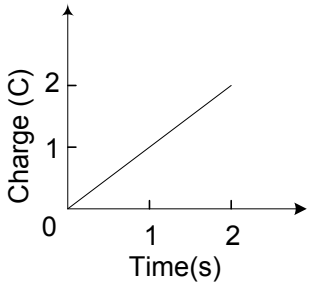
TOPIC
Electricity and Magnetism – Section XI – Question 5

QUESTION
The following graph represents the charge traveling on a wire. The electrical current in amperes most nearly is



(A) 0.5
(B) 1.0
(C) 1.5
(D) 2.0

HINT
Electrical current is the rate of change of charge

$$i(t) = \frac{dq}{dt}.$$

Remember that derivative represents the slope of a line.

SOLUTION
The current is given by

$$i(t) = \frac{dq}{dt}$$=slope of $q(t)$

From above graph

$q(t) = t$ (Equation of a straight line).

Therefore,

$$i(t) = \frac{dq}{dt}$$=1A

ANSWER
(B)

CONTRIBUTOR
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