28 Light of a single wavelength is incident normally on a diffraction grating.

The resulting diffraction pattern is displayed on a screen.

Which change makes the first orders of intensity maxima further apart from each other on the screen?

A placing the screen closer to the diffraction grating

B using a diffraction grating with less separation between adjacent slits

C using a diffraction grating with more slits but keeping the same separation between adjacent slits

D using light with a shorter wavelength

29 For a current-carrying wire, the current can be calculated using the equation shown.

$$I = Anvq$$

What is the meaning of n?

A the number of charge carriers in the wire

B the number of charge carriers multiplied by the volume of the wire

C the number of charge carriers per unit length of the wire

D the number of charge carriers per unit volume of the wire

30 The number of free electrons passing a point in a wire in 24 hours is 6.0×10^{23}.

What is the average current in the wire?

A 6.3 pA **B** 1.1 A **C** 67 A **D** 4.0 kA