

**Question 1****(4 marks)**

A straight conducting rod is placed in contact with, and at right angles to, two conducting rails 30 cm apart. A magnetic field of 0.4 T is perpendicular to both the rails and the rod, as shown in the diagram below. A current of 1.5 A flows from the supply through both the rails and the rod.

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- (a) (i) Draw an arrow showing the direction of the flow of conventional current in the circuit. (1 mark)
- (ii) Draw an arrow on the conducting rod to show the direction of the force acting on it. (1 mark)
- (b) Calculate the magnitude of the force referred to in part (a) (ii). (2 marks)

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