16 A device called a clutch can be used to connect a motor to a load. The diagram shows a design called an eddy current clutch. Side view copper disc ارم load م plastic disc magnet motor motor magnet plastic disc copper disc Several magnets are embedded in the plastic disc and it is rotated by the motor. (a) (i) Explain why a current is induced in the copper disc when the motor is switched on. **(2)** (ii) Explain, using Lenz's law, why the copper disc rotates. (3) (b) The motor rotates at 500 revolutions per minute. Calculate the angular speed ω of the motor. (2) (c) The table shows how the turning effect exerted on a load varies with ω for a particular distance between the copper disc and the plastic disc. Turning effect/Ncm ω /rad s⁻¹ 52.4 1.0 104.7 2.0 157.1 2.8 Explain the trend shown by the data. **(4)** (Total for Question 16 = 11 marks)