**BAB 8 : ELECTROMAGNETISM**
***KEELEKTROMAGNETAN***

18. Diagram 15 shows a cross-section of a bicycle dynamo. The output of the dynamo is connected to a bicycle lamp.
*Rajah 15 menunjukkan keratan rentas bagi sebuah dinamo basikal. Output dinamo itu disambung kepada sebuah lampu basikal.*

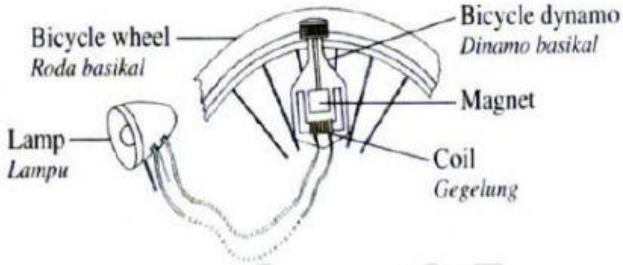


Diagram 15
*Rajah* 15

You are required to modify the dynamo in the Diagram 15 so that the brightness of the bulb increases.
*Anda dikehendaki untuk mengubahsuai dinamo dalam Rajah 15 supaya kecerahan mentol bertambah.*
State and explain the modifications based on the following aspects :
*Nyata dan terangkan pengubahsuain berdasarkan aspek-aspek berikut :*

(i) number of turn of coil / *bilangan lilitan gegelung*
(ii) the relative motion / *gerakan relatif magnet*
(iii) the magnetic strength / *kekuatan magnet*
(iv) types of core wound by coil / *jenis teras dililit gegelung*
(v) the thickness of wire coil / *ketebalan wayar gegelung.*

[10 marks / 10 *markah*]

| Modification<br>*Pengubahsuaian* | Explanation<br>*Keterangan* |
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19. Diagram 16 shows an electromagnetic relay switch that controls an automatic sliding door of a shopping complex.

*Rajah 16 menunjukkan kegunaan satu suis geganti yang mengawal pintu gelangsar automatik di sebuah kompleks membeli-belah.*

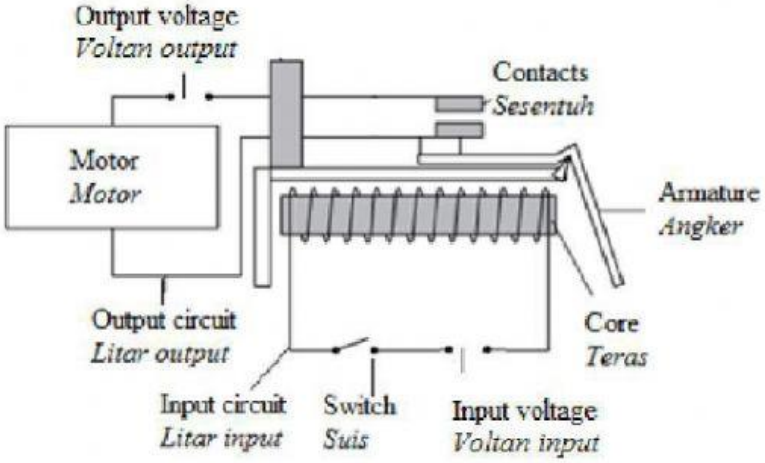


Diagram 16
*Rajah* 16

When a customer walks into the shopping complex, the sliding door opens automatically but moves slowly.
*Apabila seorang pelanggan berjalan masuk kedalam kompleks membeli belah itu, pintu gelangsar terbuka secara automatik tetapi bergerak perlahan.*

You are required to give suggestions to design an electromagnetic relay switch that enables the relay to work efficiently and open the sliding door faster.
*Anda dikehendaki memberi beberapa cadangan untuk mereka bentuk satu suis geganti elektromagnet yang membolehkan suis geganti berfungsi dengan cekap dan pintu gelongsar dibuka dengan cepat.*

Using your knowledge on electromagnet, explain your suggestions based on the following aspects:
*Menggunakan pengetahuan anda tentang elektromagnet, terangkan cadangan anda berdasarkan aspek-aspek berikut:*

(i) the type of core
*jenis teras*

(ii) the type material of armature
*bahan angker*

(iii) the number of turns of coil
*bilangan lilitan gegelung*

(iv) output voltage
*voltan output*

(v) mass of the sliding door
*jisim pintu gelangsar*

[10 marks / 10 *markah*]

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| Suggested modifications<br>*Cadangan pengubahsuian* | Explanation<br>*Penerangan* |
|---|---|
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