CHAPTER 8 : ELECTROMAGNETISM

11. An electric bell is a mechanical bell operates based on the principle of an electromagnet. When an electric current is applied, it produces a repetitive buzzing.
Loceng elektrik ialah loceng mekanikal yang beroperasi berdasarkan prinsip elekromagnet. Apabila arus elektrik mengalir, loceng akan berdering berterusan.

You are asked to investigated the design and the characteristics of four electric bell shown in Table 11.
Anda ditugaskan untuk mengkaji reka bentuk dan ciri-ciri bagi empat loceng elektrik seperti ditunjukkan dalam Jadual 11.

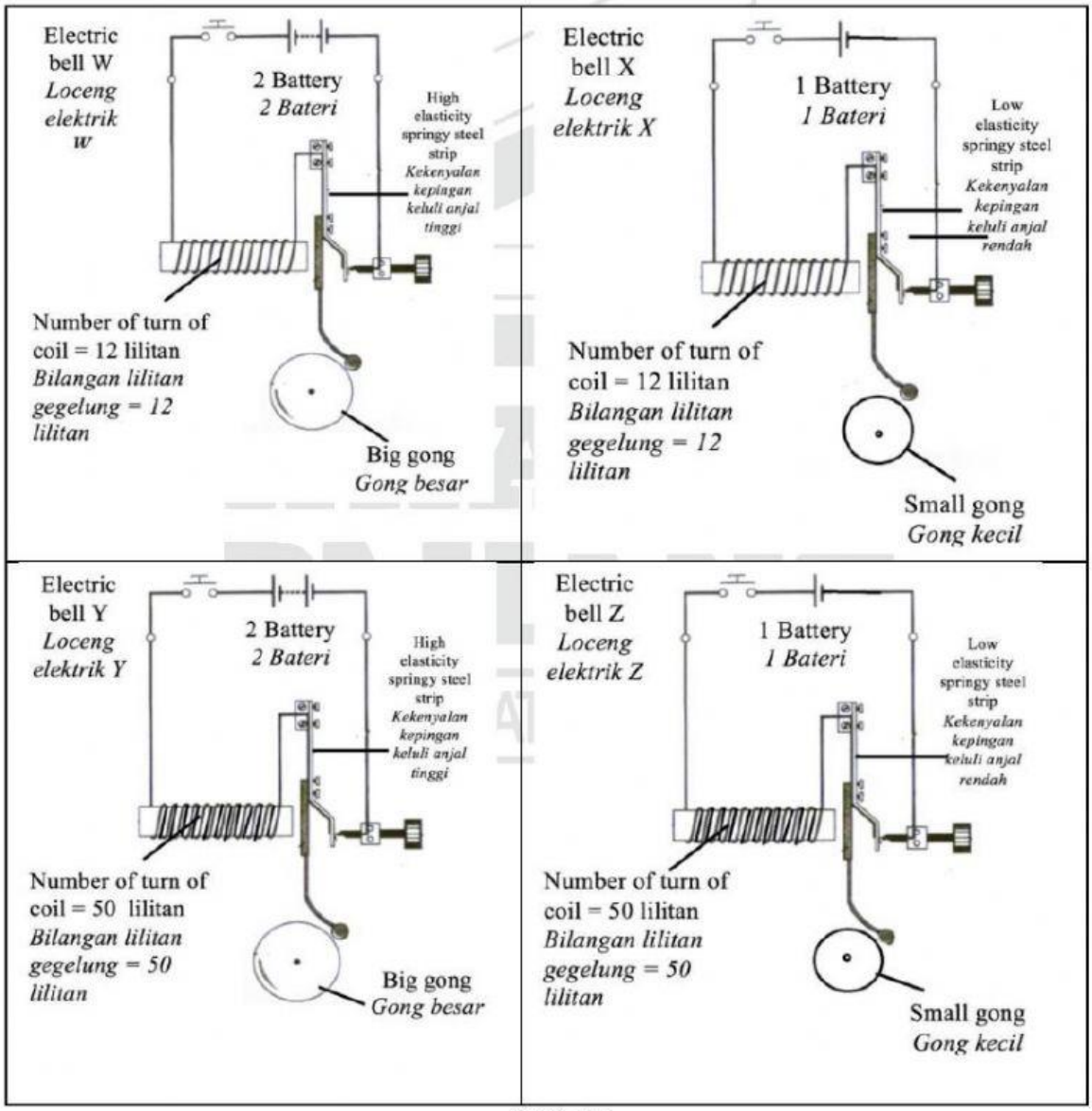

Table 11
Jadual 11

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Explain the suitability of each characteristic of the electric bells and determine the electric bell which can produce loudest sound.
Give reason for your choice.

Terangkan kesesuaian setiap ciri loceng elektrik itu dan tentukan loceng elektrik yang boleh menghasilkan bunyi yang paling kuat.
Beri sebab untuk pilihan anda.

[10 marks /*markah*]

Characteristics *Ciri*	Explanation *Keterangan*

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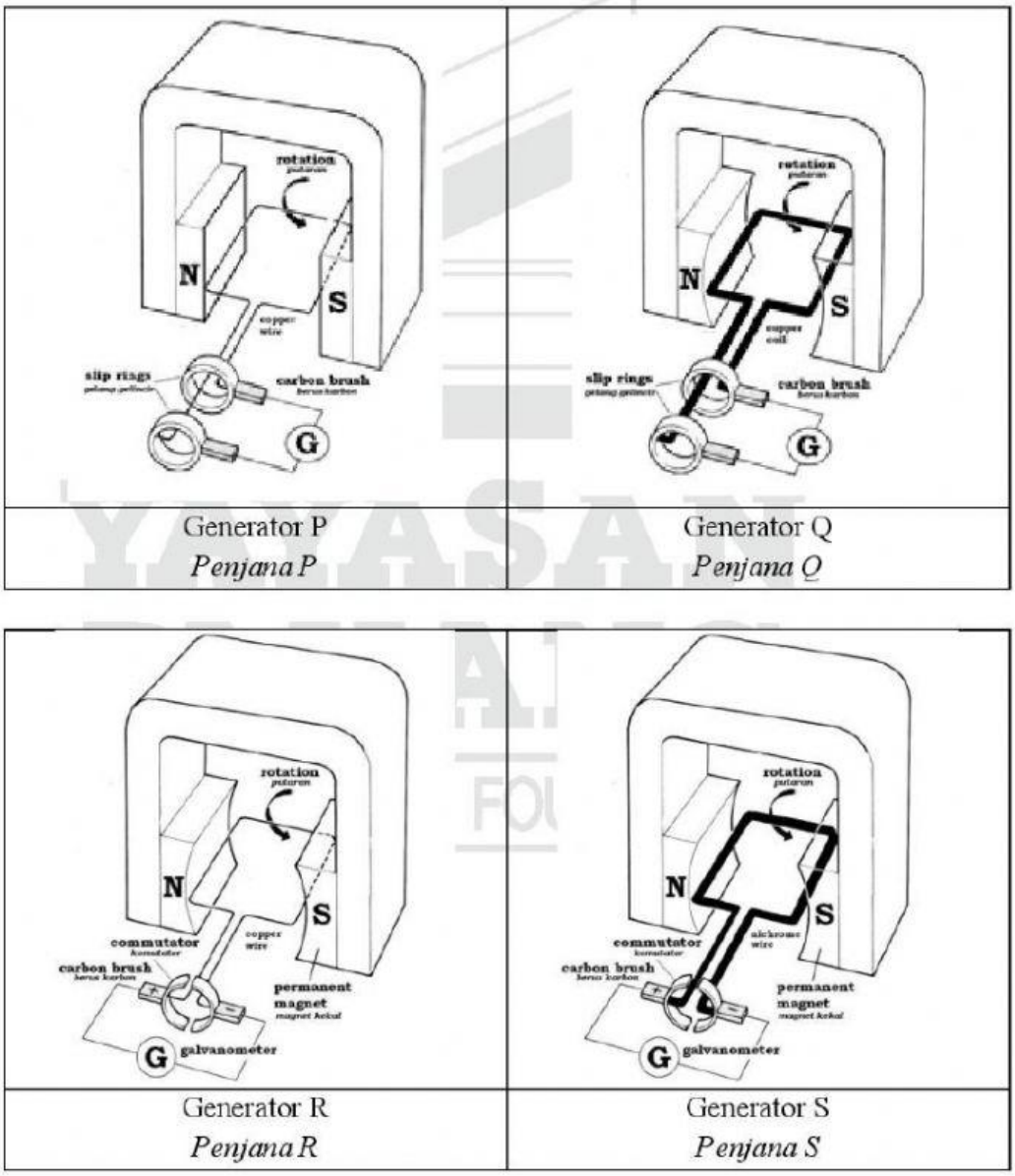
13. A power station generates voltage and transmits the electrical energy to the consumers using transmission cables and transformers. A generator in a power station generates electrical energy using the principle of *electromagnetic induction*.

Diagram 12 shows the basic structure of four generators, P, Q, R and S.

Stesen janakuasa menjana voltan dan menghantar tenaga elektrik kepada pengguna menggunakan kabel-kabel penghantaran dan transformer. Suatu penjana di stesen janakuasa menghasilkan tenaga elektrik menggunakan prinsip aruhan elektromagnet.

Rajah 12 menunjukkan penjana-penjana P, Q, R dan S.



Generator P *Penjana P*	Generator Q *Penjana Q*
Generator R *Penjana R*	Generator S *Penjana S*

Diagram 12
Rajah 12

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You are required to choose a generator which can produced an induced current that will be transmitted to a set of transformer. Study the generators P, Q, R and S and consider the following aspects:

Anda diminta untuk memilih satu penjana yang boleh menghasilkan arus aruhan yang akan disalurkan kepada satu set transformer. Kaji penjana-penjana P, Q, R dan S dan pertimbangkan aspek-aspek berikut:

- the shape of permanent magnet / *bentuk magnet kekal*
- thickness of wire /*ketebalan dawai*
- the type of wire / *jenis dawai*
- the component attached to the end of coil / *komponen yang dihubung pada hujung gegelung*

You are required to choose a generator that generates the highest induced current.
Give a reason for your choice.

Tentukan penjana yang paling sesuai digunakan untuk menghasilkan arus aruhan yang maksimum.
Berikan sebab-sebab untuk pilihan anda.

[10 marks /*markah*]

Characteristics *Ciri-ciri*	Explanation *Keterangan*

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