The Engineering World

1. Energy sources can be classed as either renewable or non-renewable. Complete the lists below by identifying whether the following energy sources are renewable or non-renewable.

Energy Sources: Coal, Tidal Power, Solar, Gas, Oil, Geothermal, Wave Power

|  |  |
| --- | --- |
| Renewable Energy | Non-Renewable Energy |
|  |  |
|  |  |
|  |  |
|  |  |

1. Match the processes to the correct description by drawing connecting lines between them.

Produce movement when a small current is passed through

Piezoelectric transducers

Change colour when an electric current is passed through them

Electrochromic materials

Piezoelectric actuators

Generate an electrical charge when they are squeezed

1. Give two advantages of using optical fibres in the communications sector.
2. Explain two characteristics of Kaizen that ensure continuous improvement within an engineering

company.

1. Outline the five main stages in PCB manufacture.

1.

2.

3.

4.

5.

1. Which of the following list of materials would the products/components shown be manufactured from?

Ceramics – boron carbide, Cobalt-based super alloys, Ceramics – zirconia

Abrasive for machining steel -

Vehicle armouring -

Dental implants -

1. Give two disadvantages of using robots on a production line.
2. Explain how telematics works and give one example of a possible use.
3. Explain the advantages and disadvantages of using just-in-time production.
4. Give three reasons why hydrogen fuel cells are so useful.
5. Explain the process of turning a piece of material on a lathe.
6. Using workshop materials such as centre lathes can be dangerous. Give three safety procedures that you must follow when using a centre lathe.
7. Give one advantage and one disadvantage of using mass production to produce Blue-Ray DVD players.
8. Give three advantages of using CNC machinery.
9. Use the internet to identify and label the parts on a pillar drill.

