**Student name:………………………………………**

# Question 3

Use the corresponding numbers and letters in the table below to answer the question.

For each environmental condition listed, select a **conductor** and an **insulator** that would work best for that condition. Then give a reason for your selection.

*Please note, you can use the same conductor, insulator and reason more than once. You only need to choose* ***one*** *letter or number for* ***each*** *answer.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Condition**  | **Conductor** (insert number) | **Reason why conductor selected** (insert letter) | **Insulator** (insert number) | **Reason why insulator selected** (insert letter) |
| Heat  |   |   |   |   |
| Moisture  |   |   |   |   |
| Corrosive materials  |   |   |   |   |
| Dust  |   |   |   |   |
| Tension  |   |   |   |   |
| Compression  |   |   |   |   |
| Vibration  |   |   |   |   |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Conductor/Insulator**  |  | **Conductor/Insulator**  |  | **Conductor/Insulator**  |
| **1**  | Copper  | **7**  | Brass  | **13**  | Glass  |
| **2**  | Silver  | **8**  | Gold  | **14**  | Mica  |
| **3**  | Aluminium  | **9**  | Lead  | **15**  | Oil  |
| **4**  | Tungsten  | **10**  | Tin  | **16**  | Ceramic porcelain  |
| **5**  | Carbon  | **11**  | Hard drawn copper  | **17**  | Hard rubber  |
| **6**  | Nichrome  | **12**  | Stranded copper  | **18**  | PVC  |
|  | **Reason for selection**  |  | **Reason for selection**  |  | **Reason for selection**  |
| **A**  | High melting point  | **E**  | High tensile strength  | **I**  | Soft  |
| **B**  | Resistant to corrosion  | **F**  | Flexible  | **J**  | Crimping lugs and sleeves can be used  |
| **C**  | Resistant to oxidation  | **G**  | Withstand vibration  | **K**  | Can cope with compression  |
| **D**  | Unaffected by dust  | **H**  | Water resistant  |   |   |

*(ER 1.3)*

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