**6.2 CLASS WORKSHEET - PROPERTIES OF RADIATION AND RADIOACTIVE ISOTOPES**

**1.  Ionizing and penetrating power of radiation**

**Complete the following table by adding the words “high”, “medium” or “low”**

|  |  |  |
| --- | --- | --- |
| Type of Radiation | Ionizing Power | Penetrating Power |
| alpha |  |  |
| beta |  |  |
| gamma |  |  |

**2.     Calculating and using half-lives**

|  |  |  |  |
| --- | --- | --- | --- |
| (a) | Magnesium-28 is radioactive. A sample of magnesium-28 was monitored over several days and its rate of decay is shown in the graph below: | | |
| (ii) | Use the graph above to note the time taken for: | |
|  | Time |
| 50% of the sample to decay |  |
| 75% of the sample to decay |  |
| (iii) | Hence estimate the half-life of magnesium-28 | |
|  | |

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| --- | --- | --- | --- |
| (b) | (i) | Uranium-238 has a half-life of 160,000 years.  Marcus has 2000 atoms of uranium-238. | |
| (α) | How many uranium-238 atoms will she have after 540,000 years? |
|  |
| (ii) | Janika has some radium-224. It is radioactive.  She notices that after 14.5 days her sample is emitting radiation at 6.25% of its original rate.  What is the half-life of radium-224? | |
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