Practice Question Set For GCSE
**Subject : Physics**
**Paper-1 Topic: GCSE Triple Science Atomic Structure (High Demand Questions)**

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**Name of the Student**:_____
**Max. Marks : 17 Marks** **Time : 17 Minutes**

Mark Schemes

## *Q1.*

*(i) (strontium-90)*
*beta rays <u>partly</u> absorbed by aluminium*
*accept gamma rays not absorbed **and** alpha all absorbed*
*if phosphorus -32 then one mark max for beta ray explanation*
***1***

*long half life means it can be <u>used for a long time</u>*
***1***

*(ii) (technetium-99)*
*(gamma) rays will <u>pass out</u> of body / less likely to be absorbed*
*accept (gamma) less damaging or alpha / beta will damage cells if cobalt -60 then one mark max for gamma ray explanation*
***1***

*short half life means it will <u>not affect body over a long period</u>*
***1***

***[4]***

## *Q2.*

*neutron becomes proton / neutron emits electron / neutron emits beta particle*
*gains proton neutral*

***[1]***

## *Q3.*

*(a) evidence of* $\frac{7350}{15}$
*gains 1 mark*

***but***

*490*
*gains 2 marks*

***but***

*4900*
*gains 3 marks*

*units $cm^3$*

*for 1 further mark*

***4***

*(b)* *some of radioactive solution gets into cells/body organs*
*some of radioactive solution gets into urine (in the kidney)*
*the radioactive solution becomes less radioactive during the test*
*variability in readings*

*in any order for 1 mark each*

***3***

*(c)* *ideas that*

- *won't lose (too) much radioactivity during the test*
- *won't stay radioactive/harm cells for too long after test is over*

*for 1 mark each*

***2***

***[9]***

## *Q4.*

*(i)* *(fast moving) electrons (from the nucleus)*
*(allow negatively charged particles)*

*for 1 mark*

***1***

*(ii)* *protactinium has one neutron fewer*
*protactinium has one proton more*
*(credit has different numbers of neutrons / protons with one mark)*

*for 1 mark each*

***2***

***[3]***