Practice Question Set For A-Level
Subject : Physics
Paper-1 Topic: Particle And Radiation

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Name of the Student:_____
Max. Marks : 18 Marks **Time : 18 Minutes**

Mark Schemes

Q1.

(a) (i) hadrons

B1 **1**

(ii) +1e

B1 **1**

(b) (i) (Strangeness) 1 → 0 + 0

B1 **1**

(ii) (Strangeness not conserved but) decay possible because it is a weak decay

B1 **1**

[4]

Q2.

(a) γ / (pair of) gamma (ray(s))/Z_0 (particles) (followed by gamma rays) / photon(s) of electromagnetic radiation

B1 **1**

(b) (i) mass can be converted to energy and vice versa

B1 **1**

(ii) charge

B1

baryon <u>number</u>

B1

lepton <u>number</u>

B1

minus 1 for each incorrect answer **if more than 3 answers are given**

3

[5]

Q3.

(a) passed them between charged plates / near charged object

or

use magnetic field

M1

correct deviation

or

circular path in direction indicating negative charge

A1

2

(b) diffraction

B1

electron is behaving as a wave

B1

2

(c) (i) $p = h/\lambda$ or **substitution of wavelength** into $\lambda = h/p$ *or* $\lambda = h/mv$

C1

2.76 or 2.8×10^{-19}

A1

kg m s^{-1} / N s / J s m^{-1} / J Hz^{-1} m^{-1}

B1

3

(ii) $E_K = p^2/2m$ or quotes $p = mv$ **and** $E_k = ½ mv^2$ (symbols or numbers)

C1

4.1 or 4.2×10^{-8} (J)

A1

2

[9]