PMY8111 Section A Question 3

**PLEASE STATE YOUR FIVE DIGIT ANONYMOUS CODE:**

1. The figure below is taken from a research article entitled 'Development of level A, B and C *in vitro–in vivo* correlations for modified-release levosimendan capsules'. Levosimendan is used for the treatment of congestive heart failure. The figure shows a plot of *in vitro* dissolution data versus *in vivo* absorption data for a lead candidate modified-release levosimendan oral capsule formulation.

****

1. What level of *in vitro-in vivo* correlation (IVIVC) do the data in the figure represent? Give a reason for your answer.

[10%]

1. Across how many timepoints were the *in vivo* and in *vitro* data collected?

[10%]

1. Explain how the ‘fractional dissolution *in vitro’* data (plotted on the x-axis) would have been obtained.

[15%]

1. Explain how the ‘fractional absorption *in vivo’* data (plotted on the y-axis) would have been obtained.

[15%]

1. Describe in detail, the **FIVE** main strategies for microneedle-enhanced transdermal drug delivery.

[50%]

Please write your answer within the lines above and below this sentence (you may delete this text)

**Please check you have entered your anonymous code at the top of the first page**

**For staff use only. Do not delete or alter this section in any way**

Marks awarded for this question: