

Name: _____ Student Number: _____

Department: _____ Signature: _____

Question 1. (5 pts) Evaluate

$$\lim_{n \rightarrow \infty} \frac{1}{n} \left[\left(\frac{1}{n}\right)^9 + \left(\frac{2}{n}\right)^9 + \left(\frac{3}{n}\right)^9 + \cdots + \left(\frac{n}{n}\right)^9 \right].$$

Question 2. (5 pts) Find

$$\frac{d}{dx} \int_9^{2x^3+x} \sqrt{\sin(\pi t)} dt.$$