



| | | | |
|------|--|----|--|
| Name | | ID | |
|------|--|----|--|

| Question Number | I | II | Total |
|-----------------|---|----|-------|
| Mark | | | |

[I] Determine whether the following series converge or diverge. Justify your answer. [5.5 Points]

(i) $\sum_{n=1}^{\infty} e^{-n}$

(ii) $\sum_{n=1}^{\infty} \frac{3n}{5n+1}$

(iii) $\sum_{n=1}^{\infty} \frac{1}{\sqrt[3]{2n+1}}$

$$(iv) \sum_{n=1}^{\infty} \frac{2+\cos n}{n^2}$$

$$(v) \sum_{n=1}^{\infty} n^2 e^{-n^3}$$

[II] Find the sum of $\sum_{n=1}^{\infty} \left(\frac{1}{4}\right)^n + \left(\frac{3}{4}\right)^n$

[1.5 Points]

Good Luck 😊