Question 1. [6 MARKS] ASYMPTOTICS

Part (a) [2 MARKS]

Fill in each blank below with **exactly one** of the following expressions, to make each statement true.

$$1 \qquad \log n \qquad n \qquad n \log n \qquad n^2 \qquad 2^n$$

Each expression may be used for any number of answers. No justification required.

i– $\sqrt{n^{16}} \in \omega(\underline{\quad n^2 \quad})$

ii– $n \log_2(3n+4) \in \Theta(\underline{\quad n \log n \quad})$

iii– $\frac{n+1}{6n+5} \in \Theta(\underline{\quad 1 \quad})$

iv– $n^{16} + 2^n \in \Theta(\underline{\quad 2^n \quad})$

MINIMAL SOLUTION

NOTE. For ω, *any* other answer "lower" in the hierarchy is acceptable, e.g., $\omega(\log n)$ is also correct.