UCL Department of Computer Science
CS M038/GZ06: Mobile and Cloud Computing
2010–2011, Term 2
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One-pager: SampleWidth (Chandra *et al.*, 2008) **Due: Start of lecture, 4nd February 2011**

Instructions: ***in your own words,*** *answer the following questions as* ***succinctly*** *as possible (in 200–500 words total, but shorter answers within this range are encouraged). Quoting figures or text from the assigned reading or from any other source is specifically prohibited.*

Chandra *et al.* investigate the impact of changing channel width by measuring peak throughput at various modulations and channel widths (§3). After modelling the time for a single 802.11 transmission (including inter-frame spacings and time for the acknowledgement), which they call a "packet transaction," they evaluate their model against empirically-measured throughput and observe that their model tends to over-estimate throughput at higher channel widths and modulations. They claim that the reason for this is because "...beacons and background noise...incur a higher per-packet overhead..." at higher channel widths and modulations.

Explain *how* beacons incur overhead on an 802.11 packet transaction, and explain how background noise causes overhead on an 802.11 packet transaction. Cite quantitative (numerical) evidence from the paper that lends credence to this hypothesis.