PHYS40352 Solid State Physics, numerical answers 2011/12

1 (c) uncertainty in position: 100Å (various answers were accepted, depending on the form assumed for the uncertainty relation)

1 (e) ratio of effective mass to free-electron mass: 0.070

2 (c) reciprocal lattice vectors: (111), (200), (220) in units of $2\pi/a$ with cubic lattice parameter a = 3.59Å

3 (c) 52% copper, 48% zinc