

3(a)	<u>dominant</u> ; 3 / daughter, has disease but, 2 / father, does not or 3 / daughter, could not have the disease if allele were recessive ;
3(b)	any three from: 1 founder effect ; 2 allele / variegate porphyria, present in, migrants / settlers / founding population ; 3 higher frequency than in, Dutch / Europeans / original population ; 4 genetic drift has large effect in small, population / gene pool ; 5 inbreeding / migrants married within their own population ; 6 high frequency of allele maintained over, time / generations ; 7 AVP ;
3(c)	any four from: 1 use mRNA (from person's cells) to make, cDNA / ssDNA ; 2 add fluorescent, label / tag / dye / chemical / marker, to (this ss) DNA ; 3 cDNA / ssDNA, hybridises with / binds to / complementary base pairs with, probe(s) / microarray ; 4 fluorescence shows, disease / mutant, gene / allele, expression / transcription ; 5 AVP ;
3(d)	any one from: 1 find out / diagnose, person's disease ; 2 so can, choose / develop, right treatment ; 3 global, research resource / access ;
3(e)	any three from: 1 change from T to C or replacement / substitution, of T, with / by, C or substitution of C for T ; 2 functional / working / correct / normal, enzyme / protein, produced ; 3 <u>gRNA</u>, is specific to / only finds / just alters, CEP / disease / mutant, allele / gene or <u>gRNA</u> does not bind to genes other than CEP ; 4 AVP ;