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Family name Given name Student number

**ENS1161 Computer Fundamentals**

**Test 9**

(a) How many 8-bit binary numbers begin with 11?

………………

(b) How many 4-permutations are there of the letters of DYNAMO?

………………

(c) How many 3-subsets are there of the set {a, b, c, d, e, f}?

………………

(d) Consider the one million 6-digit decimal numbers (from 000000 to 999999).

(i) How many begin with 55? ………………

(ii) How many end with 777? …...………….

(iii) How many begin with 55 and end with 777? ...…………….

(iv) How many begin with 55 or end with 777, or both? ...…………….

(e) Solve the congruence 7w ≡ 8 (mod 9)

……………………

[1 + 2 + 2 + 4 + 1 = 10 marks ]