

Name: Answer

Instructions: Answer all questions. Do NOT use any notes, book or calculator and show all work using back of page if necessary. Clearly indicate the final answer on the front of the page.

1. (10 points) Convert the following numbers to the radix as indicated. All numbers in parts a – e are unsigned numbers.

a) $123.4_8 = ?_{10}$

$$(1*8 + 2)*8 + 3 + 4*8^{-1} = 83.5_{10}$$

b) $100101.11_2 = ?_{10}$

$$1*2^5 + 1*2^2 + 1*2^0 + 1*2^{-1} + 1*2^{-2} = 37.75_{10}$$

or $100101.110_2 = 45.6_8$

$$4*8^1 + 5*8^0 + 6*8^{-1} = 32 + 5 + 0.75 = 37.75_{10}$$

c) $2686_{10} = ?_8$

$$2686 / 8 = 335 \text{ r } 6 \quad \Rightarrow 5176_8$$

$$335 / 8 = 41 \text{ r } 7$$

$$41 / 8 = 5 \text{ r } 1$$

$$5 / 8 = 0 \text{ r } 5$$

d) $7E.C_{16} = ?_{10}$

$$7*16 + 14 + 12*16^{-1} = 112 + 14 + \frac{3}{4} = 126.75_{10}$$

or $01111110.1100_2 = 176.6_8$

$$(1*8 + 7)*8 + 6 + 6/8 = 126.75_{10}$$

e) $586_{10} = ?_5$

$$586 / 5 = 117 \text{ r } 1 \quad \Rightarrow 4321_5$$

$$117 / 5 = 23 \text{ r } 2$$

$$23 / 5 = 4 \text{ r } 3$$

$$4 / 5 = 0 \text{ r } 4$$