

Number Systems and Codes

MODULE TEST

You may wish to review the exercises or audio-visual material before taking this module test. Once you begin the test, do not refer to the course materials.

There are seven questions.

1. Complete the table below.

Number System	Base	Actual Values
Decimal	_____	_____
Octal	_____	_____
Binary	_____	_____

2. Give the actual value and place value of the digit 8 in the number 3859.

ACTUAL VALUE = _

PLACE VALUE = _____

3. Decimal Equivalents (Circle one answer only.)

The decimal equivalent of the *actual value* of the digit 9 in the *decimal* number 1978 is _____.

- a) 10 b) 9 c) 81 d) 90 e) 900

The decimal equivalent of the *place value* of the digit 9 in the *decimal* number 1978 is _____.

- a) 9 b) 90 c) 900 d) 100 e) 1000

The decimal equivalent of the *actual value* of the digit 5 in the *octal* number 2756 is _____.

- a) 1 b) 8 c) 5 d) 10 e) 4

The decimal equivalent of the *place value* of the digit 7 in the *octal* number 2756 is _____.

- a) 800 b) 100 c) 8 d) 64 e) 512

The decimal equivalent of the *place value* of the digit 1 in the *binary* number 1000 is _____.

- a) 32 b) 16 c) 8 d) 2 e) 1

4. The table below contains 13 decimal numbers. Write the octal and binary equivalents for each number in the space provided. (Note that several answers are already given to you.)

Decimal	Octal	Binary
3	3	011
4		
5		
6		
7		
8		
⋮	⋮	⋮
500	764	111 "110" 100
501		
502		
503		
504		
505		
506		

5. Equivalents

Circle the *decimal* equivalent of each of the following *binary* numbers.

a. 101 111 110₂

1) 382₁₀

2) 380₁₀

3) 282₁₀

4) 280₁₀

b. 010 010 011₂

1) 139₁₀

2) 136₁₀

3) 146₁₀

4) 147₁₀

c. 111 001 000₂

1) 456₁₀

2) 458₁₀

3) 466₁₀

4) 468₁₀

Circle the *octal* equivalent of each of the following *decimal* numbers:

a. 28_{10}

1) 32_8

2) 33_8

3) 34_8

4) 35_8

b. 57_{10}

1) 71_8

2) 72_8

3) 73_8

4) 74_8

c. 107_{10}

1) 152_8

2) 153_8

3) 162_8

4) 163_8

Circle the *binary* equivalent of each of the following *octal* numbers:

a. 2734_8

1) 010 110 011 100₂

2) 010 111 011 100₂

3) 010 111 010 101₂

4) 010 111 010 011₂

b. 1562_8

1) 1 101 110 010₂

2) 1 011 000 100₂

3) 1 101 111 010₂

4) 1 101 010 010₂

c. 77564_8

1) 111 111 010 010 101₂

2) 111 111 010 110 100₂

3) 111 111 101 110 101₂

4) 111 111 101 110 100₂

6. The purpose of a code such as ASCII is that it _____. (Circle one answer only.)

a. Allows analog machines such as analog computers to represent character information that people are trained to use.

b. Sets standards for training computer operators in various computer languages.

c. Allows binary machines such as digital computers to represent character information that people are trained to use.

d. Two of the above are correct.

e. None of the above is correct.

7. Assuming even parity, only one of the following characters contains an error. (Circle the correct answer.)

a. 11011110

b. 1101001

c. 01011010

d. 11010100

e. 11011100