1. State the rules for creating data names.
   1. **Must be between 1-30 characters**
   2. **At least one alphabetic character**
   3. **Cannot include spaces, replace with hyphen**
   4. **Cannot start or end with hyphen**
   5. **Can consist of A-Z, a-z, 0-9, hyphen**
   6. **Name should be unique in program**
   7. **Cannot use reserved words dedicated to programming**
2. What is the purpose of the PICTURE clause?

**The picture clause provides information about the type of data stored and the sie of the storage area for the item.**

**TYPE AND SIZE OF AN ELEMENTARY ITEM**

1. What symbol represents the following in a PIC clause?

X – **alphanumeric data (String )**

A – **alphabetic data (Letters or spaces)**

9 – **Numeric data**

V – **Decimal point Reference**

S – **Signed (Holds the negative sign)**

1. Explain the difference between Alphanumeric and Numeric Literals.

**Alphanumeric** – fields containing letters, numbers, and spaces identified by PIC X()

**Numeric** – fields that contain all numbers along with optional + or – sign as numeric data by using the PIC 9999 clause (9 represents one digit). Can by up to a max of 31 digits.

1. What is the purpose of the FILLER clause?

Show that data is present, but you don’t want to access it. Used as a spacer for data.

I want byte 38

FILLER PIC X(37).

BYTE-DATA PIC X.

1. Why would you use the VALUE clause?

**To set a default value for a data field. Can be used to set initial values of fields.**

1. Give examples of the figurative constants.

WS-NAME PIC X(20) VALUE SPACES.

Clears out the variable to enable the program to change it.

WS-NUMBER PIC 9(4) VALUE ZERO.

Moves hex 30 into each of the bytes of WS-NUMBER.

WS-Numbers.

WS-NUM-1 PIC 9(4) COMP.

WS-NUM-2 PIC 9(4) COMP.

MOVE LOW-VALUES TO WS-NUMBERS

Changes all the numbers to the lowest possible value hex 00. With HIGH-VALUES will change to hex ff. **Binary zero ( all bits off).**

WS-STARS PIC X(30) VALUE ALL ‘\*’.

The all uses VALUE and following that uses ALL to set all 30 bytes of data to \*

**Comp** makes the value a binary type. Faster calcs. It is a Hexadecimal.

1. Give the characteristics of an elementary item. (Look throughout the chapter)

Lowest level of data is the FIELD

The variables used in the program that are set in the program.

Uses the picture clause. PIC

1. Give the characteristics of a group item. (Look throughout the chapter)

Has elementary items or groups within itself.

Does not have a Picture clause. PIC

data type is ALWAYS alphanumeric!!!!!!!!!!!!!!!!!!!!!

Identify whether the following are valid or invalid. Identify the rule violated if invalid.

Variable Names:

99 INVALID

-ABC INVALID

99-ABC VALID

XYZ-1 AB INVALID

BOATING-SEASON-IS-COMING VALID

PICTURE INVALID

RM-BANK-ACCT- INVALID