

HAL/S PROGRAMMING FUNDAMENTALS QUIZ 8

1. True or False. The multiple assignment is legal in the following case:

Ans. _____

```
DECLARE ARR1 ARRAY(3,4,5) INTEGER INITIAL(60#10);  
STRUCTURE Q:  
  1 SVAL1 ARRAY(3,4,5) SCALAR,  
  1 SVAL2 ARRAY(3,4,5) INTEGER DOUBLE;  
DECLARE Q Q-STRUCTURE(6) INITIAL(60#1,60#2);  
SVAL1 = ARR1;
```

2. True or False. With the same data setup as in problem 1, the following assignment is legal: SVAL1\$(1;), SVAL2\$(2;) = ARR1;

Ans. _____

3. True or False. With the same data setup as in problem 1, the following assignment is legal: SVAL1 = SVAL2;

Ans. _____

4. True or False. With the same data setup as in problem 1, the following assignment is legal:

Ans. _____

```
SVAL1$(2 AT 2; 2 AT 1, 3 AT 1, 4 AT 1) = SVAL2$(2 AT 4; 2 AT 2, 3 AT 2, 4 AT 2);
```

5. In the following case what will be printed to unit 6 (what data type is it?)

Ans. _____

```
DECLARE CVAR1 CHARACTER(5) INITIAL('ABCDE');  
DECLARE IDEX ARRAY(5) INITIAL(5,4,3,2,1);  
WRITE(6) CVAR1$(IDEX);
```

6. True or False. A 1-, 2-, or 3-dimensional array of integer or scalar data type may occur in an exponent or subscript (or both). If any element (main line, subscript line, exponent line) has arrayness, however, then all arraynesses must match.

Ans. _____

7. True or False. The following IF statement will compile and execute – and the TRUE branch will be taken. Ans. _____

```
DECLARE IFLAG BOOLEAN INITIAL(TRUE);
DECLARE BOOLARR ARRAY(20) BOOLEAN INITIAL(20#TRUE);
IF (BOOLARR) THEN IFLAG = FALSE;
```

8. What type of expression will be printed to unit 6? Ans. _____

```
DECLARE MM MATRIX(3,3) INITIAL(1);
DECLARE IDEX ARRAY(3,4,5) INTEGER INITIAL(... 60 values ...);
DECLARE JDEX ARRAY(3,4,5) INTEGER INITIAL(... 60 values ...);
WRITE(6) MM$(IDEX,JDEX);
```

9. True or False. The ARRAY(*) option is restricted to input parameters. An ASSIGN parameter of a procedure cannot be an indefinite-length array. Ans. _____

10. True or False. The STRUCTURE(*) option must be used whenever a multicopy structure is being passed as either an input or an assign parameter. Ans. _____

11. True or False. The form ARRAY(*,5) can be used to specify a 2-dimensional array in which only the outer dimension is left of indefinite length. Ans. _____

12. True or False. The SIZE function will return the declared array dimension for any 1-dimensional array or multicopy structure. Furthermore, the SIZE function works even with non-parameters (i.e., an array declared to be of a specific length) and is fully evaluated at compile time. Ans. _____

```
DECLARE ARR1 ARRAY(20) INTEGER;
DO FOR I = 1 TO SIZE(ARR1);
    ARR1$I = 1;
END;
```

13. True or False. The following is an illegal ASSIGN argument. Ans. _____

```
STRUCTURE Q:
    1 VAR1 ARRAY(2,4) VECTOR,
    1 VAR2 CHARACTER(20);
DECLARE Q Q-STRUCTURE(20);
CALL PROC ASSIGN(Q);
```

14. True or False. Assuming the situation in problem #13, which of the following are legal ASSIGN arguments. Ans. _____

- a) CALL PROC ASSIGN(Q\$(3;));
- b) CALL PROC ASSIGN(Q\$(2 TO 5;));
- c) CALL PROC ASSIGN(VAR1);
- d) CALL PROC ASSIGN(VAR1\$(3 AT 6;));
- e) CALL PROC ASSIGN(VAR1\$(4;));
- f) CALL PROC ASSIGN(VAR1\$(4;1,*:));
- g) CALL PROC ASSIGN(VAR1\$(4;*,:*));
- h) CALL PROC ASSIGN(VAR1\$(4;1,2:));
- i) CALL PROC ASSIGN(VAR1\$(4;1,2:1 TO 2));
- j) CALL PROC ASSIGN(VAR1\$(4;1,2:3));
- k) CALL PROC ASSIGN(VAR1\$(4;*,:*3));

15. True or False. Vectors and Matrices can be constructed dynamically using the VECTOR and MATRIX conversion (shaping) functions. The arguments of these shaping functions can be integers, scalars, vectors, or matrices – and arrays of these as well. However, a STRUCTURE (or minor structure) cannot be specified in the argument list of these shaping functions. Ans. _____

16. True or False. A SCALAR is converted to INTEGER by truncation whether performed by an implicit conversion or by the explicit INTEGER conversion function. Ans. _____

17. True or False. Conversions from BIT or CHARACTER to INTEGER/SCALAR are never automatic. The INTEGER or SCALAR conversion functions must be used and, of course, CHARACTER strings must have appropriate values to permit such conversions. Ans. _____

18. True or False. The following is syntactically correct: Ans. _____

```
DECLARE IVAL INTEGER DOUBLE INITIAL(2100);  
DECLARE SVAL SCALAR;  
SVAL = SCALAR$(@DOUBLE) (IVAL);
```

19. True or False. The following is syntactically correct: Ans. _____

```
DECLARE IARR ARRAY(8) INTEGER INITIAL(1,2,3,4,5,6,7,8);  
DECLARE MM MATRIX(5,5) DOUBLE;  
MM = MATRIX$(@DOUBLE,5,5) (100,3#IARR);
```