

## HAL/S PROGRAMMING FUNDAMENTALS QUIZ 6

1. True or False. A STRUCTURE template consumes neither code nor data space.  
Ans. \_\_\_\_\_
2. What is the maximum level number within a STRUCTURE template?  
Ans. \_\_\_\_\_
3. What are the minor structures (forks) within the following template?  
STRUCTURE QQ: 1 V1, 2 S1, 2 S2, 1 V2, 1 V3, 2 B1, 2 B2, 1 V4;  
Ans. \_\_\_\_\_
4. True or False. HAL/S allows assignments and comparisons at the STRUCTURE level, the minor structure level, and the terminal level.  
Ans. \_\_\_\_\_
5. What is the default data type and precision of a structure terminal with no listed attributes?  
Ans. \_\_\_\_\_
6. True or False. STRUCTURE Template names must be unique within the name scope in which they are defined.  
Ans. \_\_\_\_\_
7. True or False. STRUCTURE declarations must occur within the same HAL/S block as the templates to which they refer.  
Ans. \_\_\_\_\_
8. True or False. The names (identifiers) defined within a STRUCTURE template do not necessarily have to be unique.  
Ans. \_\_\_\_\_
9. What is the minimum value for “n” in the following STRUCTURE declare?  
DECLARE QQ QQ-STRUCTURE(n);  
Ans. \_\_\_\_\_
10. True or False. An unqualified structure results when the structure name is identical to the template name.  
Ans. \_\_\_\_\_
11. True or False. Once a template has been used to create an unqualified structure, it may not also be used to create additional qualified structures. Ans. \_\_\_\_\_
12. True or False. Like structure templates, structure names must also be uniquely named within their name scope.  
Ans. \_\_\_\_\_

13. True or False. If the structure template is initialized (via INITIAL or CONSTANT), then its initialization applies to all structures which reference that template unless they have their own initialization. Ans. \_\_\_\_\_
14. True or False. In order to initialize all copies of a multicopy structure to the same data, the best method is to supply enough elements to fully initialize the first copy and then to use the '\*' symbol. Ans. \_\_\_\_\_
15. True or False. Assume that we have a qualified structure name of the form Q.A.B.C.T where Q is the structure name and T is the terminal name. Then A, B, and C must be minor structures with level numbers 1, 2, and 3 respectively. Ans. \_\_\_\_\_
16. Assuming that no other structure templates are referenced (i.e., nested structures), what is the maximum number of identifiers that could occur in a qualified structure name. Ans. \_\_\_\_\_
17. True or False. A fully qualified structure name can only be used for qualified structures, i.e., structures whose names are different from their template names. Ans. \_\_\_\_\_
18. True or False. Unqualified structures may not have multiple copies. Ans. \_\_\_\_\_
19. True or False. There is no difference in performance or memory usage between a qualified structure and an unqualified structure. Ans. \_\_\_\_\_
20. True or False. The following structure template will get a compile error:  
 STRUCTURE QQ:  
   1 A,  
   1 SCAL\_GROUP,  
     2 SCAL1 SCALAR,  
     2 SCAL2 SCALAR,  
   1 INT\_GROUP INTEGER,  
     2 INT1 INTEGER,  
     2 INT2 INTEGER; Ans. \_\_\_\_\_
21. True or False. Structure templates that contain a nested structure (a terminal of structure type) cannot be used to create unqualified structures. Ans. \_\_\_\_\_

22. True or False. In order to use a certain template to form an unqualified structure, each terminal of the template must be unique within the minor structure within which it is defined. Ans. \_\_\_\_\_

23. True or False. If a template Q is used to form a structure named Q then all terminals of the template Q must be unique within the name scope of Q. Ans. \_\_\_\_\_

24. True or False. There is no inherent performance inefficiency in collecting related data into a structure. There may, however, be some hidden memory costs. Ans. \_\_\_\_\_

25. True or False. In the form Q\$I where Q is a multicopy structure, I may be any literal or variable expression. Its value will be determined at runtime if necessary and no error checking will be done to ensure that it is a valid subscript. Ans. \_\_\_\_\_

26. True or False. If a multicopy structure (or any of its minor structures or terminals) is subscripted then the first subscript is assumed to be the copy subscript. If any further subscripting is to be done (e.g., array or component subscripting) then the copy subscript must be followed by a semicolon and then followed by the remaining subscripts. Ans. \_\_\_\_\_

27. True or False. In the multicopy subscripting form Q\$(K-L+3 TO M+N-1), all 4 of the variables K, L, M, and N must be known at compile time, e.g., initialized with the CONSTANT attribute. Ans. \_\_\_\_\_

28. True or False. In the multicopy subscripting form Q\$(I+J AT M+N-1), only M and N must be known at compile time, e.g., REPLACE M BY "11"; REPLACE N BY "7"; Ans. \_\_\_\_\_

29. True or False. The actual memory space utilized by a structure may be more than it would appear to be by simply counting up the number of halfwords needed for each terminal. This is due to the fact that the compiler must enforce certain boundary alignment constraints on the terminals and minor structures. Ans. \_\_\_\_\_

30. Since a matrix acts like a 2-dimensional array and a multicopy structure acts like a 1-dimensional array, what is the maximum number of dimensions that can occur in a HAL/S variable? Ans. \_\_\_\_\_