



CSE 313s

Selected Topics in Computer Engineering

Sheet 5

1. @(posedge clk) returns:
 - a. 0
 - b. 1
 - c. Will not return any value
 - d. All of the above
2. What is the difference between a *struct* and *union* in SystemVerilog?
3. Explain what the following code does, and then:
 - I. Write SV code to remove entries from q that have “to_remove = 1”.
 - II. Write SV code to check that no entry in q has “to_remove = 1”.

```
class widget;
    int id;
    bit to_remove;
endclass

module top;
    widget q[$];
    initial begin
        widget w;
        int num = $urandom_range(20,40);
        for(int i; i<num; i++) begin
            w = new;
            w.id = i;
            w.to_remove = $urandom_range(0,1);
            q.push_back(w);
            $display("widget id: %2d, to_remove: %b", q[$].id, q[$].to_remove);
        end
    end
endmodule
```

4. Write a code for clock generator?
5. What is the default value of enumerated data type?

6. In what context do you use foreach loop?
7. Write a SV code to print the contents of a two dimensional array using foreach loop.
8. What is the output of the following SV code given that the contents of the file “file.txt” are as follows?

file.txt

```
aa
bb
cc
```

```
module iques();
  string strin[$];
  int file;
  initial begin
    string s;
    file = $fopen("file.txt", "r");
    while (!$feof(file)) begin
      $fscanf(file, "%s", s);
      strin.push_front(s);
    end
    $fclose(file);
    foreach(strin[j])
      $display("index j = %0d string = %s", j, strin[j]);
    $finish;
  end
endmodule
```

9. What will be the printed value out of the following code?

```
module test();
  bit [7:0] A,B;
  initial begin
    A=8'hff; B=8'h01;
    $display("%x", A+B);
  end
endmodule
```

10. Is this a correct code?

```
module test();
  enum {a=0, b=7, c, d=8} alphabet;
endmodule
```

11. In an array, if index is out of the address bounds, then what will be the return value?
12. What is the return type of Array locator method find_index?
13. Write a program to choose elements randomly from a queue. No element should be repeated until all elements are chosen. Queue may have elements repeated.

14. Declare a queue of integers with maximum number of elements to be 256
15. Write a clock generator without using an always block.
16. How to pick an element from a random location in a queue.
17. What is streaming operator, and what is its use?
18. What are void functions?
19. Explain about pass by ref and pass by value?
20. What is the concept of a “ref” and “const ref” argument in SystemVerilog function or task?
21. What is the difference between “forever” and “for” in SystemVerilog?
22. Explain about the \$timeunit, \$timeprecision and ‘timescale’.
23. What is zero delay loop and What is the problem with zero delay loop?
24. Is it possible for a function to return an array?
25. How to make sure that a function argument passed as ref is not changed by the function?