CONSTRAINT Scenario Questions

1. Randomize the below variable such as
   ```
   class randvar;
        rand bit [7:0] var1, var2, var3, var4;
   endclass
   ```

   i) Randomize all variable.
   ii) Randomize only var2.
   iii) Randomize var1, var4.
   iv) Randomize var1, var3, var4.

2. There are two constraints applied to same variable 'A'. one will generate the value within the range of [25:50] and another expression say variable value should be greater than 40. What should be the value generated, and what is the reason?

3. What is wrong with the below code? What is the correct process to write the constraint?
   ```
   Class const;
        rand bit [7:0] low, mid, high;
        constraint Const_1 {low <mid<high;}
   end class
   ```

4. Write a single constraint to generate random values for bit [8:0] variable in the below range, 1-34, 127, 129-156, 192-202,257-260.

5. Write a constraint without an inside function to generate random values within the range of 34 to 43?

6. Write a constraint to generate a random value for a var1 [7:0] within 50 and var2 [7:0] with the non-repeated value in every randomization?

7. Without using randomization method or rand keyword(modifiers), generate an array of unique values.

8. Generate unique elements in an array without using the keyword unique.

9. Write a constraint to generate 0, 1, x and z randomly.

10. Write a constraint to generate multiples of power 2.

11. Having 32-bit of variable, only single bit high values need to be accessed. Write a constraint for that.

12. Write a constraint with array size 5 to 10 values & the array values should be in ascending order/descending order.

13. Write a constraint to generate a pattern 0102030405.

14. Constraint to Generate Pattern 0, 2, 1, 3, 4, 6, 5, 7, 8.

15. Constraint to generate unique numbers between 99 to 100.

16. Write a constraint - divisible by 5.

17. Derive odd numbers within the range of 10 to 30 using SV constraint.

18. Write a constraint to generate prime numbers between the range of 1 to 100.

19. What is circular dependency and how to avoid this problem?

20. Write a constraint in such a way that for read transaction 30% time and for write transaction 70% time.