

- Instructions:**
- 1) All questions are compulsory.
  - 2) Figures in rounded ( ) brackets within the question, indicate the scheme of marking for respective part of the question, whereas, figures in the first right column indicate total marks for that whole question.
  - 3) CO is the index number of the Course Outcome statement.
  - 4) The Bloom's taxonomy level (BL) for 1,2,3,4,5 and 6 is remember, understand, apply, analyze, evaluate and create respectively.
  - 5) Assume suitable data if necessary.
  - 6) Use of non-programmable calculators is allowed

		Marks	BT Level	COs
Q.1	A List out various methods of verification (2). Elaborate any two methods with suitable example(6).	08	BL3	CO1
	B Elaborate the System Verilog testbench flow (3) with suitable example(5).	08	BL3	CO1

Q.2	A Write the system Verilog code for Ripple Carry Adder.	12	BL3	CO2
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OR

A	Write the code for T Flip-Flop (6) and 2:1 MUX(6).	12	BL3	CO2
B	Analyze the output of following code snippets with explanation	6	BL4	CO3

```

module operator ();
initial begin
$display (" a      := %h", a);
a += 4;
$display (" a += 4   := %h", a);
a -= 4;
$display (" a -= 4   := %h", a);
a *= 4;
$display (" a *= 4   := %h", a);
a /= 4;
$display (" a /= 4   := %h", a);
a %= 17;
$display (" a %s= 17   := %h", "%", a);
a &= 16'hFFFF;
$display (" a &= 16'hFFFF := %h", a);
a |= 16'hFFFF;
$display (" a |= 16'hFFFF := %h", a);
a ^= 16'hAAAA;
$display (" a ^= 16'hAAAA := %h", a);
a <<= 4;
$display (" a <<= 4   := %h", a);

```



```

a >>= 4;
$display (" a >>= 4 := %h", a);
endmodule

```

Q.3 A Differentiate static(4) and automatic task (4)with specific code example. 08 BL5 CO4

B Analyze following requirement with suitable example. 08 BL4 CO3

Create a dynamic array named id1(1)  
 Create a dynamic array named id2(1)  
 Allocate 5 elements to id1 and initialize it with some values(1)  
 Copy contents of id1 to id2 and display(1)  
 Add element to array id2(1)  
 Display the size and elements of id2(1)  
 Delete the elements of id2 (1)  
 Display the size of array(1)

OR

Analyze following requirement with suitable example. 08 BL4 CO3

Create a Queue(1)  
 Push 4 elements in the queue from front side with values 1,2 3, 4(1)  
 Display size of queue(1)  
 Pop the elements of queue from front side(1)  
 Display each element of queue(1)  
 Insert element at 3<sup>rd</sup> place(1)  
 Display size of queue(1)  
 Delete the elements of the Queue(1)

