

- 5. (a) Write the syntax for the following constructs and give one example for each relevant to behavioral Verilog HDL modeling.
 - a) Initial construct
 - b) Always construct
 - (b) Write Verilog code for 8-bit bidirectional shift register using behavioral modeling with test bench.

[7M]

[7M]

- 6. (a) Discuss the importance of timing control in behavioral modeling. Explain in detail the types of delay based timing control with examples. [7M]
 - (b) Write the Verilog code for implementing 8x1 multiplexer in behavioral modeling using case statement with test bench. [7M]

$\mathbf{MODULE}-\mathbf{IV}$

7. (a) Explain bi-directional gates with suitable logic diagrams and give their switch level modeling.

(b)	Design a CMOS	inverter and (CMOS switch.	Write a	Verilog	code for	CMOS	inverter	and	CMOS
	switch in switch	level modeling	g.							[7M].

- 8. (a) Write about basic switch primitives. Describe the logic operation of half adder using CMOS switches. [7M]
 - (b) Construct a module of two-input pseudo-nmos NOR gate and write Verilog code in switch level modeling. [7M]

$\mathbf{MODULE}-\mathbf{V}$

9.	(a)	Describe the state diagram and state table of the following state machines
		i) Mealy machine
		11) Moore machine [7M]
	(b)	Write a Verilog module to detect 11011 sequence using melay state machine with state diagram. $[7M]$
10.	(a)	Describe briefly about synthesis of asynchronous sequential machines. [7M]
	(b)	Draw the block diagram of master-slave JK flip-flop by using latches. Write the Verilog code for

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the same flip flop.

[7M]

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