

MODULE III

| Topic                                              | Question                                                                                                                               | mark   | Month &Year | Regulation |
|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|--------|-------------|------------|
| Sequential circuit                                 | Compare synchronous and asynchronous sequential circuit                                                                                | 5      | Jun 10      | 2004       |
|                                                    | Draw the general form of sequential circuit and explain                                                                                | 5      | Dec 08      | 2004       |
|                                                    | What is meant by sequential circuit                                                                                                    | 5      | Dec 08      | 2K         |
|                                                    | Differentiate between Combinational and sequential logic circuit                                                                       | 2      | Oct 11      | 2009       |
|                                                    |                                                                                                                                        | 2      | Oct 12      | 2009       |
| Latches and Flip Flops                             | Draw the simple SR latch                                                                                                               | 5      | Dec 05      | 2K         |
|                                                    | Construct D flip flop with NAND gates                                                                                                  | 5      | Dec 05      | 2K         |
|                                                    | Draw the diagram of D-type positive edge triggered flip flop and explain                                                               | 10     | Dec 10      | 2009       |
|                                                    | Derive the characteristic equations and logic diagrams of a                                                                            |        |             |            |
|                                                    | i) Clocked RS flip-flop                                                                                                                | 4      | Jul 12      | 2004       |
|                                                    | ii) JK flip-flop                                                                                                                       | 4      |             |            |
|                                                    | iii) T flip-flop                                                                                                                       | 4      |             |            |
|                                                    | iv) D flip-flop                                                                                                                        | 3      |             |            |
|                                                    | Deduce the characteristic equation of the JK flip flop and draw the logic circuit                                                      | 5      | Dec 10      | 2004       |
|                                                    | Consider a JK flip flop with an inverter between external input K and Internal input K. Obtain the characteristic and excitation table | 5      | Dec 09      | 2K         |
|                                                    | Draw the circuit of JK flip flop and explain its operation with truth table                                                            | 5      | Dec 09      | 2K         |
|                                                    | Write the internal function of J-K flip flop                                                                                           | 5      | Dec 11      | 2K         |
|                                                    |                                                                                                                                        | 5      | Dec 07      | 2K         |
|                                                    | Convert D flip flop to T flip flop                                                                                                     | 5      | Jun 08      | 2K         |
|                                                    |                                                                                                                                        | 5      | Jun 04      | 2K         |
|                                                    | Explain the function of S-R flip flop with truth table                                                                                 | 5      | Jun 10      | 2004       |
|                                                    |                                                                                                                                        | 5      | Dec 08      | 2004       |
|                                                    |                                                                                                                                        | 5      | Jun 09      | 2K         |
|                                                    | Convert a D flip flop to a JK flip flop by including input gates to the D flip flop                                                    | 5      | Jun 07      | 2K         |
|                                                    | What is excitation table? Give excitation table for S-R flip flop and JK flip flop                                                     | 5      | Jun 10      | 2004       |
|                                                    | Draw the circuit of edge triggered D flip flop and explain                                                                             | 5      | Jun 08      | 2004       |
|                                                    | Give excitation tables of SR and T flip flops                                                                                          | 5      | Dec 07      | 2K         |
|                                                    | Give excitation tables of JK and T flip flops                                                                                          | 5      | Dec 07      | 2004       |
|                                                    | 5                                                                                                                                      | Dec 05 | 2K          |            |
| Give excitation tables of JK,SR and T flip flops   | 5                                                                                                                                      | Oct 12 | 2009        |            |
| Give excitation tables of SR,D,JK and T flip flops | 5                                                                                                                                      | Dec 10 | 2009        |            |
|                                                    | Write the functions of shift registers                                                                                                 | 5      | Dec 07      | 2004       |
|                                                    | Explain the operation of shift registers and discuss their types                                                                       | 10     | Dec 10      | 2009       |
|                                                    | Construct a serial in – serial out shift register                                                                                      | 5      | Dec 11      | 2K         |
|                                                    |                                                                                                                                        | 5      | Dec 07      | 2K         |

|                                                     |                                                                                                           |        |        |      |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------|--------|--------|------|
| Shift registers                                     | Construct a 4-bit bidirectional shift register                                                            | 5      | Oct 11 | 2009 |
|                                                     | Explain SISO,SIPO,PISO and PIPO shift registers                                                           | 10     | Oct 11 | 2009 |
|                                                     | Draw the circuit of 4-bit shift register and explain its operation in all 4 modes                         | 15     | Jun 09 | 2K   |
| Shift registers                                     | Explain the working principle of universal shift registers with neat diagram                              | 10     | Oct 12 | 2009 |
|                                                     | Explain the formation of universal shift registers                                                        | 15     | Jun 08 | 2K   |
| Counters<br>(Asynchronous, ring and johnson)        | Construct a 4-bit up down counter with T flip flop                                                        | 10     | Oct 11 | 2009 |
|                                                     | Construct a 4-bit ripple up-down counter                                                                  | 5      | Oct 12 | 2009 |
|                                                     |                                                                                                           | 15     | Jun 04 | 2K   |
|                                                     |                                                                                                           | 15     | Dec 08 | 2K   |
|                                                     | Construct a 4-bit ripple up counter using T flip flop                                                     | 15     | Dec 05 | 2K   |
|                                                     | Construct a 4-bit binary ripple counter using D flip flop                                                 | 5      | Jun 04 | 2K   |
|                                                     | Construct MOD-N counter                                                                                   | 5      | Oct 11 | 2009 |
|                                                     | Draw the circuit of ring counter and explain.                                                             | 5      | Oct 12 | 2009 |
|                                                     |                                                                                                           | 6      | Jun 10 | 2004 |
|                                                     |                                                                                                           | 5      | Dec 10 | 2K   |
|                                                     |                                                                                                           | 5      | Dec 08 | 2K   |
|                                                     |                                                                                                           | 5      | Dec 11 | 2K   |
|                                                     | Explain the operation of Johnson counter with neat circuit diagram                                        | 5      | Jun 10 | 2004 |
|                                                     |                                                                                                           | 15     | Dec 09 | 2K   |
|                                                     | Draw the circuit of 4-bit binary counter using JK flip-flop and explain its operation with timing diagram | 5      | Dec 06 | 2K   |
|                                                     |                                                                                                           | 15     | Jun 08 | 2004 |
|                                                     | Construct MOD-12 counter using JK flip flop                                                               | 15     | Dec 07 | 2004 |
| Construct MOD-12 counter                            | 5                                                                                                         | Dec 10 | 2009   |      |
| Construct MOD-10 counter                            | 5                                                                                                         | Oct 11 | 2009   |      |
| Explain the concept of Johnson counter              | 2                                                                                                         | Dec 10 | 2009   |      |
| Construct a Johnson counter for ten timing signals  | 5                                                                                                         | Jun 04 | 2K     |      |
| Explain the concept of Johnson and ring counter     | 15                                                                                                        | Jun 07 | 2K     |      |
| Draw the circuit diagram of BCD counter and explain | 7                                                                                                         | Dec 06 | 2K     |      |

