Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

SIXTH SEMESTER B.TECH. (INSTRUMENTATION AND CONTROL ENGG.)

END SEMESTER EXAMINATIONS, JUNE - 2018

SUBJECT: EMBEDDED SYSTEMS DESIGN [ICE 4002]

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitably assumed.

1A.	Using revenue model, derive the percentage revenue loss equation for any rise angle, rather than for 45 degrees.	**4**
1B.	With block diagram explain the design technology and the techniques to enhance the productivity.	**4**
1C.	For the design of a product NRE cost = $2000, Unit cost = $100, Number of Units = 10. Calculate the total cost and per product cost.	**2**
2A.	Describe the basic architecture of a General Purpose Processor with block diagram.	**4**
2B.	Design a pulse divider to slow the preexisting pulse so that the output is high for every 4 pulses detected. Use the state diagram for the design and obtain the final circuit.	**4**
2C.	Build a 2 input NOR gate using CMOS transistor. Analyze the implementation using Truth Table.	**2**
3A.	Compare EPROM and EEPROM.	**5**
3B.	Explain the addressing mechanism for memory read operation in basic DRAM architecture with block diagram.	**3**
3C.	Design 1K X 32 ROM using 1K X 8 ROMs.	**2**
4A.	Explain shared memory and message passing with an example.	**5**
4B.	Describe Program State Machine Model with an example.	**3**
4C.	Brief the importance of pipelined instruction execution.	**2**
5A.	Explain the basic operations defined by concurrent process model.	**4**
5B.	Describe the practical issues related to computer based control.	**4**
5C.	Brief the key features in modelling real physical systems.	**2**