

FACULTY OF INFORMATICS**B.E. 4/4 (I.T.) II – Semester (Make-up) Examination, July 2015****Subject: Embedded Systems****Time: 3 Hours****Max.Marks: 75****Note: Answer all questions from Part A. Answer any five questions from Part B.****PART – A (25 Marks)**

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| 1 | Write in detail the design challenges of Embedded Systems. | 3 |
| 2 | Give the flag bits of PSW in 8051 | 2 |
| 3 | Write ALP to store the content of DPTR address in external RAM location 0123h and 02BCh. | 3 |
| 4 | Write ALP to push the contents of B register to TMOD | 3 |
| 5 | What is heart-beat timer? | 2 |
| 6 | What is Re-entrant function? What is the role of Re-entrant function? | 3 |
| 7 | Define RTOS. Give some applications of RTOS. | 2 |
| 8 | What is meant by scaffold code? | 2 |
| 9 | Explain 'IF' statement in ARM processor with example | 3 |
| 10 | Discuss about parallelism in instruction. | 2 |

PART – B (5x10 = 50 Marks)

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| 11 a) | Explain the details of requirements and specification in designing of a model train controller. | 5 |
| b) | Give the detailed description of timers and counters of 8051. | 5 |
| 12 a) | Explain the addressing modes of 8051 with examples. | 5 |
| b) | Write an ALP program to double the content of RAM location 32 and copy the result in R6 (MSB), R7 (LSB). | 5 |
| 13 a) | Write a program to interface a flash ADC with 8051 for the following specifications:
Conversion time: 1 Micro sec
Control sequence: CS on P3.2 then WR signal on P3.3 and RD on P3.4
Digitize the input wave form every 100d microseconds until 100d samples have been stored in the external RAM location starting at 400h. | 5 |
| b) | Explain in detail about INTERRUPTS IN 8051. | 5 |
| 14 a) | Explain how the embedded software is ported onto a target system. | 5 |
| b) | Discuss about the rules to be followed by the interrupt routine in RTOS Environment. | 5 |
| 15 a) | Explain how the embedded software is ported onto a target system. | 5 |
| b) | Write short notes on 12C bus protocol. | 5 |
| 16 a) | Describe the three modes of serial communication. | 5 |
| b) | Explain the architecture of 8051 in detail. | 5 |
| 17 a) | Discuss about memory management in RTOS. | 5 |
| b) | Write short notes on real-time constraints in distributed RTOS. | 5 |
