

QP Code : 3410

(3 Hours)

[Total Marks : 80

N.B : (1) Question No. 1 is compulsory.

(2) Solve any **three** questions out of remaining questions.

(3) **Figures** to the **right** indicate **full** marks.

(4) Assume suitable **data** where **necessary**.

1. (a) What is embedded system? Discuss various components of embedded system. 5
- (b) Describe the instructions of 8051, SWAP A and MOVX @ DPTR, A with one example. 4
- (c) Explain PSW register of 8051. 5
- (d) Describe the features of ARM that makes it suitable for embedded system. 6
2. (a) Explain in detail ARM 7 pipelining. 10
- (b) Explain addressing modes of 8051. 10
3. (a) Write an assembly language program for 8051 to find the largest number from a data block of ten bytes that are present in internal memory locations 20H to 29H. Store the result in memory location 2AH. 10
- (b) What is Event register? Explain the use of Event function with respect to embedded operating systems. 10
4. (a) Write an assembly language program to generate a rectangular waveform of frequency 1 KHz and 30% duty cycle at pin P1.0 using 8051. Assume 8051 is operating at frequency 12 MHz. 10
- (b) Describe the flow of ARM development tools for embedded system design 10

5. (a) How RTOS manages the memory? Give the memory management strategy of RTOS in embedded system. 10
- (b) Explain various modes of operation of serial port in 8051 10
6. (a) Explain automated meter reading system in detail . 12
- (b) Explain how semaphores can be used to solve shared data problem. 8
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