Reg. No. : | | | | | | | | | | |

Question Paper Code: 46503

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

Sixth Semester

Electronics and Instrumentation Engineering

14UEI603 - REAL TIME EMBEDDED SYSTEMS ARCHITECTURE

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The 8051 has _____ 16-bit counter/timers.

   (a) 1 (b) 2 (c) 3 (d) 4

2. In 8051 which interrupt has highest priority?

   (a) IE1 (b) TF0 (c) IE0 (d) TF1

3. What is the order decided by a processor or the CPU of a controller to execute an instruction?

   (a) decode, fetch, execute (b) execute, fetch, decode
   (c) fetch, execute, decode (d) fetch, decode, execute

4. Abbreviate CISC and RISC

   (a) Complete Instruction Set Computer, Reduced Instruction Set Computer
   (b) Complex Instruction Set Computer, Reduced Instruction Set Computer
   (c) Complex Instruction Set Computer, Reliable Instruction Set Computer
   (d) Complete Instruction Set Computer, Reliable Instruction Set Computer

5. The Width of a processor's data path is measured in bits. Which of the following are common data paths?

   (a) 8 bits (b) 12 bits (c) 16 bits (d) 32 bits

6. Which computer memory is used for storing programs and data currently being processed by the CPU?

(a) Mass memory (b) Internal memory
(c) Non-volatile memory (d) PROM

7. Deadline-driven constraints so called

(a) Reality-time constraints (b) Real-time constraints
(c) Real-data constraints (d) None of these

8. Processor must accept and process frame before next frame arrives, typically called

(a) Hard real-time systems (b) Real-time constraints
(c) Real-data constraints (d) Soft real-time systems

9. Two partitions must be insulated to prevent operations on one half from affecting other, such floating-point operations are called

(a) Single-instruction operation (b) Vector operation
(c) Paired single operations (d) Fetch operation

10. Which of these is a digital input device?

(a) pressure sensor (b) servo
(c) button (d) potentiometer

PART - B (5 x 2 = 10 Marks)

11. List the features of 8051.

12. List the various registers used in 8051.

13. What is an embedded system?

14. What do you meant by bus arbitration?

15. What is the difference between mutexes and semaphores?

PART - C (5 x 16 = 80 Marks)

16. (a) Explain with a neat block diagram the architecture of 8051 microcontroller. (16)

Or

(b) Explain the different addressing modes of 8051 microcontroller. (16)

17. (a) Explain about Data transfer, control & I/O instructions of 8051 Micro controller. (16)

Or

(b) Describe with a neat diagram the stepper motor control using microcontroller. (16)

18. (a) Explain in detail about design process of an embedded system. (16)

Or

(b) Describe in detail about the types of memory used in embedded system. (16)

19. (a) Explain about Timer and counting devices. (16)

Or

(b) Explain in detail about ISA bus. (16)

20. (a) Explain about Non maskable interrupts. (16)

Or

(b) Explain in detail about the interrupt latency and deadline. (16)

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