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A P J ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SEVENTH SEMESTER B.TECH DEGREE (HONOURS) EXAM DEC 19

Course code: 06EC6045

Course Name: Embedded System Design

Time: 3 Hours   **Max. Marks: 60**

PART A

Answer ALL questions

1. What is a "market window" and why is it so important for products to reach the market early in this window?

2. What are the methods to increase the instruction throughput of a microprocessor?

3. Explain the common types of cache write techniques.

4. What are the benefits of computer based control implementations?

(4 x 5 marks =20 marks)

PART B

5. (a)Compute the percentage revenue loss if D=5 and W=10.If the company whose product entered the market on time earned a total revenue of $25million, how much revenue did the company that entered the market 5 months late lose?   (4)

   (b)List and define three main design technologies. How are each of the three different design technologies helpful to designers?   (6)

OR

6. Define the "Mythical man-month". Explain design productivity gap? What is the implication of the growing gap?   (10)

7. Explain the design steps involved in optimizing a custom single purpose processor with an example.   (10)

OR

8. What is FSMD? How it differs from FSMs? Explain the process to build a datapath

    for a custom single-purpose processor.   (10)

9. (a) With the help of appropriate sketches, explain ISA bus protocol for memory

    read and   memory write   (5)

 (b) Write short notes on the serial protocols

            i) FireWire

            ii) USB   (5)

OR

10. (a) Explain the three basic technologies by which cache mapping can be

    Accomplished.   (5)

    (b) Write short notes on

            i) RDRAM

            ii) NV RAM   (5)

11. (a) Briefly discuss the practical issues related to computer based control.   (5)

     (b) With the help of a block schematic, explain an open loop automobile

       cruise controller.   (5)

OR

12. (a)   Distinguish between open loop and closed loop control systems.   (5)

    (b) Write a generic PID controller in C.   (5)

(4 x 10 marks =40 marks)