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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
FIRST SEMESTER M.TECH DEGREE EXAMINATION, DECEMBER 2015

**Electronics & Communication Engineering**  
**(VLSI & Embedded Systems)**

**04 EC6507—Design with ARM Microcontrollers**

Max. Marks : 60

Duration: 3 Hours

**PART A( Answer All,Each Carrying 03 Marks)**

1. Explain the embedded system model with neat diagram.
2. What are the trends in embedded design for low power dissipation?
3. Distinguish between compiler and assembler.
4. List out the important features that make the ARM ideal for embedded application.
5. Explain the instructions used to multiply and divide the content of register by 2.
6. Write a program to find whether a given number is even or odd.
7. What is the necessity for having MAM module? How does it work?
8. Calculate the value of PWMMR0 and PWMMR3 to get a pulse train of 10ms and duty cycle of 50%

**[03\*08= 24 Marks]**

**[ P.T.O ]**

**PART B ( Answer All,Each Carrying 06 Marks)**

9. Discuss the importance of embedded system architecture.

**OR**

10. Explain the embedded system design process in detail.

11. Distinguish between SRAM and DRAM. Why is SRAM the preferred memory technology for cache?

**OR**

12. Explain the interfacing of ADC to 8051 with neat diagram.

13. How to download the hex file to non-volatile memory? Explain briefly.

**OR**

14. Explain the software application that provides comprehensive facilities to computer programmers for software development.

15. Explain the functional block diagram of ARM920T core processor with neat sketch.

**OR**

16. Write a note on ARM architecture versions.

17. Write a program to find the sum of 100 natural numbers and save the result in memory.

**OR**

18. Write a note on directives used in ARM.

19. Explain LPC2148 MCU with neat block diagram.

**OR**

20. Generate a symmetric square wave at 4<sup>th</sup> pin of port 1 using software delay.