1283

Register Number

V Semester Diploma Examination, April/May-2018

ARM CONTROLLER

Time : 3 Hours] **[Max. Marks : 100**

Note : (i) Answer any **six** full questions from Part – **A**

(ii) Answer any **seven** full questions from Part – **B**

PART – A 6 × 5 = 30

1. List the special features of ARM processor design. 5

2. Explain AND & EOR instructions with example. 5

3. Describe the function of ENTRY, AREA & SPACE assembler directives. 5

4. Explain register usage in thumb. 5

5. Write a note on exception priorities. 5

6. Define the term interrupt latency & list the methods to minimize latency. 5

7. List any 5 features of LPC 2148. 5

8. Discuss reset & wake-up timer. 5

9. (a) Name the applications of timer. 3

   (b) Write Embedded C statement to configure : 2

   (i) Pin 19 of Port 0 as output and want to drive it high (Logic 1)

   (ii) Configuring 1ˢᵗ 16 Pins of Port 0 (P 0.0 to P 0.15) as output and setting them high.

PART – B

10. (a) Explain 3-stage pipelining of ARM – 7 with example.   7

   (b) Discuss mode bits of CPSR register.   3

11. Explain ARM core data flow model with a neat diagram.   10

12. (a) Explain 5 different shift operations that can be used with Barrel Shifter.   5

   (b) Write the instruction to perform the following operations :   5
      (i) Add number 256 to R1, place the sum in register R2.
      (ii) Place a 2's complement of -1 into register R3.
      (iii) AND ing. R1 content with the complement of 256, place the result in register R2.
      (iv) To returning from subroutine.
      (v) Copy a complement of 4 into R1.

13. (a) Predict the operation performed by the execution of each compare instruction.   5

   (b) Distinguish between post & pre indexed addressing mode with an example.   5

14. (a) Compare ARM & thumb instructions.   5

   (b) Write an ALP to find length of a null terminated string.   5

15. (a) Differentiate between interrupts and exceptions.   5

   (b) Explain vector table.   5

16. (a) Explain the importance of Brownout Detector.   5

   (b) Explain the power modes supported by LPC 2148.   5

17. (a) Sketch a neat block diagram of PLL.   5

   (b) Write the procedure for PLL frequency calculation.   5

18. (a) List any 5 features of GPIO.   5

   (b) Choosing FOSC = 10 MHz and CCLK = 60 MHz configure PLLO.   5

19. (a) List any 5 features of timer in LPC 2148.   5

   (b) Explain Pin Connect block of LPC 2148.   5