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

Question Paper Code : 40088

M.E./M.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2018.

Third Semester

Applied Electronics

AP 5301 — ADVANCED MICROPROCESSOR AND MICROCONTROLLER ARCHITECTURE

(Regulations 2017)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Which processor is faster, 5 GHZ or 10 GHZ? Justify.
2. What is integrated graphics processing?
3. Outline branch prediction logic.
4. What is smart cache?
5. List the merits and demerits of RISC architecture.
6. What is pipeline architecture?
7. Write the significance of watchdog timers.
8. Why is debugging required in a system?
9. What is 'Thumb 2' instruction technology?
10. Differentiate exception and trap.

PART B — (5 × 13 = 65 marks)

11. (a) Interface a processor having 16 bit address lines with 4K ROM and 4K RAM. Find out the memory mapping address.

Or

(b) Explain superscalar and dynamic execution with diagrams.

12. (a) Explain Intel 64 bit architecture.

Or

(b) Explain Pentium 32 bit architecture.

13. (a) Explain the programming model of ARM architecture in detail.

Or

(b) With examples explain ARM instruction set in detail.

14. (a) Explain the communication interfaces for processors in detail.

Or

(b) Explain the architecture, features and important specifications of modern microcontrollers.

15. (a) Illustrate the architecture of ARM 'Cortex-M3' microcontroller.

Or

(b) Explain the importance of Interrupts and illustrate the vectored interrupt controller in detail.

PART C — (1 × 15 = 15 marks)

16. (a) Design a system to sense temperature at a point and display it using microcontroller. Write an assembly language code.

Or

(b) Design an system to vary the DC motor speed using PWM and display the speed using microcontroller. Write an assembly language code.

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