

Reg. No. :

Question Paper Code : 10190

M.E./M.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

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. Define orthogonal instructions with an example.
2. State the parameters which decides the performance benchmark of a microprocessor.
3. State the roles of interrupt controllers in modern micro processors.
4. Define over clocking in micro processors.
5. State two drawbacks of RISC architecture.
6. What is watchdog timer?
7. How is bus arbitration done in IIC Bus?
8. What is Linker, Debugger?
9. State the application of barrel shifter in 3-stage pipeline ARM organization.
10. State three important features incorporated in ARM architectures.

PART B — (5 × 13 = 65 marks)

11. (a) Discuss about integrated graphics processing in processors. Give the challenger in power management in it. (7 + 6)

Or

- (b) Discuss with block diagram,
(i) The memory interfacing of multicore process with.
(ii) Inclusion of cache memory in the process.

12. (a) Discuss about important blocks of intel 64 bit architecture. (7 + 6)

Or

- (b) Discuss about branch prediction logic in Intel CISC processors.

13. (a) Explain with
(i) diagram Three stage pipeline ARM organization and discuss about.
(ii) Computation speed is high and power consumption is improved in ARM.

Or

- (b) Discuss about
(i) ARM floating-point architecture.
(ii) ARM Instructions

14. (a) (i) Compare the interrupt handling capability of microprocessors and microcontrollers. (7 + 6)
(ii) Explain the IIC Bus performance in microcontroller.

Or

- (b) Discuss about
(i) ADC interfacing with 16 bit microcontroller. (5 + 7)
(ii) CAN Bus protocol support in microcontroller.

15. (a) Draw ARM core data flow model and discuss about Thumb instructions. (6 + 7)

Or

- (b) Discuss with an example, why cortex-M3 is useful for DSP applications. (13)

PART C — (1 × 15 = 15 marks)

16. (a) Discuss about the processor-design trade offs for design of a high performance microcontroller.

Or

- (b) Discuss about hyper threading technology in modern microprocessors with discussing how multiple interrupts are handled.