QP CODE: 25024615

25024615

Reg No : .....

Name : .....

M.Sc DEGREE (CSS) EXAMINATION, APRIL 2025

Fourth Semester

M Sc ELECTRONICS

CORE - EL010401 - ARM PROCESSOR BASED EMBEDDED SYSTEM

2019 ADMISSION ONWARDS

05AC3B28

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. What is AHB Bus?
2. Briefly mention any three architecture versions of ARM?
3. Define operating modes in ARM?
4. Discuss about pipeline mechanisms in ARM?
5. Briefly explain the function of IRQ exception.
6. How flag registers are affected in Branch execution?
7. Describe the functions of SWAP instruction.
8. How thumb instructions are distinguished from ARM instructions?
9. What are the different data processing instructions in thumb state?
10. What is meant by endianness in ARM?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Discuss briefly the RISC design philosophy.
12. Draw the memory mapping in ARM.
13. Write a short note on registers r13, r14 and r15 in ARM.
14. What are the priorities in ARM exceptions and explain how exceptions are handled in ARM?
15. Elaborate the working of any two arithmetic instructions in ARM.

16. Explain in detail how to load 32-bit constants in ARM.

17. Discuss in detail about the Thump branching instruction in ARM.

18. Explain how for loop structure can be implemented in ARM.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Explain in detail the various Software components of an embedded system.

20. Sketch CPSR and explain how CPSR is helpful in ARM.

21. Explain about different types Data Processing Instructions with example and how it affects conditional flags?

22. Explain different types of stack and software interrupt instructions in thumb mode.

(2×5=10 weightage)