UNIT- IV and V

1. Which features does ARM have in common with many other RISC architectures?
2. Differentiate between Current Program Status Register (CPSR) and Saved Program Status Register (SPSR)
3. What is the (Wait For Interrupt) instruction used for?
4. Why are exceptions used in ARM processors?
5. What is Jazelle extension in ARM processors?
6. .What do you mean by THUMB architecture?
7. Justify how ARM instruction set is suitable for embedded applications
8. Compare ARM and Thumb Instruction sets
9. List the features of Jazelle instruction set.
10. Discuss the ARM design philosophy
11. What are ARM Processor Families? Explain.
12. Illustrate the decoding of simple Thumb ADD instruction into an equivalent ARM ADD instruction.
13. What are multiple register load-store instructions? Explain with examples.
14. Describe the ARM Nomenclature?
15. Give different applications of ARM processors.
16. What are interrupts or exceptions? How are they handled in ARM processors
17. Define the architectural inheritance of ARM processor and explain
18. Which are the different conditional flags of ARM processor.
19. What is the difference between an instruction set and a thumb instruction set In ARM?
20. What is meant by ARM? Explain the ARM design philosophy
21. Discuss about single-Register transfer load store instructions with syntax
22. Illustrate the ARM-Thumb internetworking with suitable example
23. Illustrate the decoding of simple Thumb ADD instruction into an equivalent ARM ADD instruction.
24. Draw the architectural block diagram of ARM and explain data flow referring each unit.
25. With the help of a neat diagram, explain the ARM core dataflow model.
26. What is pipelining in a processor? Explain in brief about various stages of pipelining in ARM processors.
27. Describe the pipeline executing characteristics in an ARM processor with necessary diagrams and examples.
28. Explain about exceptions, interrupts and the vector table in an ARM processor.
29. What is the role of Barrel shifter and ALU in Data processing instruction?
30. With a neat diagram explain the different hardware components of an embedded device based on ARM core.
31. Explain briefly the data processing instructions for ARM processor
32. With a neat diagram explain the different general purpose registers of ARM processors.
33. With relevant ARM instructions, explain the various forms of base-plus offset addressing.
34. Explain briefly the data processing instructions for ARM processor.
35. How the branch instructions in ARM programming used to change the flow of execution with an example?
36. With an example explain, how to increase the performance and code density of ARM using conditional execution instructions.
37. Describe ARM programmer’s model with a neat sketch illustrating its visible registers
38. Discuss about ARM multiple register data transfer instructions along with the syntax formats.
39. Explain about the Branch instructions and register usage instructions.
40. Explain the function of following instructions one by one: i) SUB r0, r1, #5 ii) ADD r2, r3, r3, LSL, #2 iii) LOR r0, [r1] iv) SWP r3, r2, [r1] v) ADDEQ r5, r5, r6
41. What are banked registers? Show how the banked registers are utilized when the user mode changes to IRQ mode.
42. Explain the programmer’s model of ARM processors with complete register sets available.
43. Design ARM assembly language program to perform the addition and multiplication of two 32 bit numbers
44. Explain briefly the co-processor instructions of ARM processor.
45. Which are the different features of ARM instruction set that make it suitable for embedded applications.
46. With a neat diagram explain the different general purpose registers of ARM processors
47. Explain the operation of instruction ADD r3, r2, r1, LSL #3; r3:=r2+8xr1
48. Explain the architecture of LPC2148 with a neat block diagram.
49. State different on chip peripherals of LPC2148 and describe their significance
50. Provide an overview of major ARM processor families, including Cortex-A, Cortex-R, and Cortex-M series, highlighting their key features and intended applications.

**Chapter-3**

1. Write the features of 8255A
2. What is BSR mode? What is mode 0 operation of 8255?
3. What are the modes of operation supported by 8255?
4. What is the purpose of the control word written to control register in8255?
5. Describe the various modes of operation in 8253 programmable internal timer
6. What are the modes of operations used in 8253
7. Draw the block diagram of programmable Interrupt controller (8259) and explain its operations
8. Discuss the silent feature of 8259 and explain the block diagram of 8259
9. Mention the applications of 8253
10. What are different peripheral interfacing used with 8086 microprocessor
11. Discuss the internal architecture of 8253 programmable interval timer*.*
12. Explain the purpose of the Accelerated Graphics Port (AGP) and how it facilitated faster graphics performance compared to the older PCI bus
13. List out the differences between Zigbee and Bluetooth wireless Interface.
14. What is USB. List the features and Characteristics of USB with suitable examples
15. What does CAN stand for in CAN bus?
16. Describe the basic architecture of a CAN bus system.
17. What is CAN bus and why is it used in automotive systems?
18. What are the advantages of using CAN bus in automotive applications?
19. How does CAN bus support both high-speed and low-speed communication within a vehicle.