**Microprocessor & Microcontroller MCQ Questions**

1. A microcontroller at-least should consist of:  
a) RAM, ROM, I/O devices, serial and parallel ports and timers  
b) CPU, RAM, I/O devices, serial and parallel ports and timers  
c) CPU, RAM, ROM, I/O devices, serial and parallel ports and timers  
d) CPU, ROM, I/O devices and timers  
**Answer: c**2. Unlike microprocessors, microcontrollers make use of batteries because they have:  
a) high power dissipation  
b) low power consumption  
c) low voltage consumption  
d) low current consumption  
**Answer: b**3. What is the order decided by a processor or the CPU of a controller to execute an instruction?  
a) decode,fetch,execute  
b) execute,fetch,decode  
c) fetch,execute,decode  
d) fetch,decode,execute  
**Answer: d**4. How are microcontrollers classified on the basis of internal bus width?  
a) 8,16,32,64 bits  
b) 4,8,16,32 bits  
c) 8,16 bits  
d) 4,16,32 bits  
**Answer: b**5. How are the performance and the computer capability affected by increasing its internal bus width?  
a) it increases and turns better  
b) it decreases  
c) remains the same  
d) internal bus width doesn’t affect the performance in any way  
**Answer: a**6. Abbreviate CISC and RISC.  
a) Complete Instruction Set Computer, Reduced Instruction Set Computer  
b) Complex Instruction Set Computer, Reduced Instruction Set Computer  
c) Complex Instruction Set Computer, Reliable Instruction Set Computer  
d) Complete Instruction Set Computer, Reliable Instruction Set Computer  
**Answer: b**7. Give the names of the buses present in a controller for transferring data from one place to another?  
a) data bus, address bus  
b) data bus  
c) data bus, address bus, control bus  
d) address bus  
**Answer: c**8. What is the file extension that is loaded in a microcontroller for executing any instruction?  
a) .doc  
b) .c  
c) .txt  
d) .hex  
**Answer: d**9. What is the most appropriate criterion for choosing the right microcontroller of our choice?  
a) speed  
b) availability  
c) ease with the product  
d) all of the mentioned  
**Answer: d**10. Why microcontrollers are not called general purpose devices?  
a) because they are based on VLSI technology  
b) because they are not meant to do a single work at a time  
c) because they are cheap  
d) because they consume low power  
**Answer: b**  
11. How many types of architectures are available, for designing a device that is able to work on its own?  
a) 3  
b) 2  
c) 1  
d) 4  
**Answer: b**12. Which architecture is followed by general purpose microprocessors?  
a) Harvard architecture  
b) Von Neumann architecture  
c) None of the mentioned  
d) All of the mentioned  
**Answer: b**13. Which architecture involves both the volatile and the non volatile memory?  
a) Harvard architecture  
b) Von Neumann architecture  
c) None of the mentioned  
d) All of the mentioned  
**Answer: a**14. Which architecture provides separate buses for program and data memory?  
a) Harvard architecture  
b) Von Neumann architecture  
c) None of the mentioned  
d) All of the mentioned  
**Answer: a**15. Which microcontroller doesn’t match with its architecture below?  
a) Microchip PIC- Harvard  
b) MSP430- Harvard  
c) ARM7- Von Neumann  
d) ARM9- Harvard  
**Answer: b**  
16. Harvard architecture allows:  
a) separate program and data memory  
b) pipe-ling  
c) complex architecture  
d) all of the mentioned  
**Answer: d**17. Which out of the following supports Harvard architecture?  
a) ARM7  
b) Pentium  
c) SHARC  
d) All of the mentioned  
**Answer: c**18. Why most of the DSPs use Harvard architecture?  
a) they provide greater bandwidth  
b) they provide more predictable bandwidth  
c) they provide greater bandwidth & also more predictable bandwidth  
d) none of the mentioned  
**Answer: c**19. Which of the following supports CISC as well as Harvard architecture?  
a) ARM7  
b) ARM9  
c) SHARC  
d) None of the mentioned  
**Answer: c**  
20. Which of the two architecture saves memory?  
a) Harvard  
b) Von Neumann  
c) Harvard & Von Neumann  
d) None of the mentioned  
**Answer: b**21. Which of the following is the 16bit registors in 8085 processor

A. Stack Pointer

B. Program Counter

C. IR

D. a and b

**Answer : a And b**

22. Which of the following depends on the microprocessor speed

A. Clock

B. Data Bus Width

C. Address Bus Width

D. Size of Register

**Answer : C**

23. In 8088, which of the following option differs from 8086

A. Data width on the output

B. Supports Co-processor

C. Address capability

D. Supports max/min mode

**Answer: A**

24. In 8255, \_\_\_\_\_\_number of modes of I/O mode of operation we have, which of the following features comes under which mode

(i) A 5 bit control port is available.

(ii) 3 I/O lines are available at Port C

A. 3, Mode2

B. 2, Mode2

C. 4, Mode3

D. 3, Mode2

**Answer : B**

25. In ADC 0808, which of the following pin enables high output

A. EOC

B. I/P0-I/P7

C. SOC

D. OE

**Answer: D**

26. When 8086 microprocessor is interfaced to 8253 a programmable interval timer. Then the maximum number by which the clock frequency on one of the timers is divided by \_\_\_\_

A. 216

B. 28

C. 210

D. 220

**Answer : A**

27. Which functioning element of microcontroller generate and transmit the address of instructions to memory through internal bus ?

a. Instruction Decoding Unit

b. Timing and Control Unit

c. Program Counter

d. Arithmetic Logic Unit

**ANSWER: c.**

28. How does the microcontroller communicate with the external peripherals / memory?

a. via I/O ports

b. via register arrays

c. via memory

d. all of the above

**ANSWER: a**.

29. Why do the microprocessors possess very few bit manipulating instructions ?

a. Because they mostly operate on bits/ word data

b. Because they mostly operate on byte/word data

c. Both a & b

d. None of the above

**ANSWER: b**.

30. Which minimum mode signal is used for demultiplexing the data and address lines with the assistance of an external latch in a microprocessor while accessing memory segment ?

a. INTA

b. DTE

c. HOLD

d. ALE

**ANSWER: d. ALE**

31.Which word size is approved to be of greater importance for performing the small computational tasks along with its storage usability feature adopted by ASCII code?  
  
a. 4-bit  
b. 8-bit  
c. 16-bit  
d. 32-bit  
**ANSWER: b. 8-bit**

32. Which among the below stated statements does not exhibit the characteristic feature of 16-bit microcontroller?  
a. Large program & data memory spaces  
b. High speed  
c. I/O Flexibility  
d. Limited Control Applications  
**ANSWER: d. Limited Control Applications**

33. Which microcontrollers offer the provisional and salient software features of fault handling capability, interrupt vector efficiency and versatile addressing ?  
  
a. TMS 1000 (4 bit)  
b. TMS 7500 (8 bit)  
c. Intel 8096 (16 bit)  
d. Intel 80960 (32 bit)  
**ANSWER: d. Intel 80960 (32 bit)**

34. Which category of microcontrollers acquire the complete hardware configuration on its chip so as to run the particular application ?

a. Embedded Memory Microcontrollers

b. External Memory Microcontrollers

c. Both a & b

d. None of the above

**ANSWER: a.**

35. External Memory Microcontrollers can overcome the limitations of insufficient in-built program and data memory by allowing the connections of external memory using \_\_\_\_\_\_\_\_\_

a. Serial Port Pins as address and data lines

b. Parallel Port Pins as address and data lines

c. Parallel Port Pins as address and control lines

d. Serial Port Pins as address and control lines

**ANSWER: b.**

36. How are the address and data buses removed in external memory type of microcontrollers?

a. Through demultiplexing by external latch & ALE signal

b. Through demultiplexing by external latch & DLE signal

c. Through multiplexing by external latch & DLE signal

d. Through multiplexing by external latch & ALE signal

**ANSWER: d.**

37. What are the significant designing issues/factors taken into consideration for RISC Processors?

a. Simplicity in Instruction Set

b. Pipeline Instruction Optimization

c. Register Usage Optimization

d. All of the above

**ANSWER: d.**

38. What does the compact and uniform nature of instructions in RISC processors facilitate to?

a. compiler optimization

b. pipelining

c. large memory footprints

d. none of the above

**ANSWER: b.**

39. Which processor has the necessity of manual optimization for the generation of assembly language code especially for the embedded systems?

a. RISC

b. CISC

c. Both a & b

d. None of the above

**ANSWER: b.**

40. Which register of current procedure resemble physically similar to the parameter register of called procedure during register to register operation in an overlapping window of RISC Processors?

a. Local Register

b. Temporary Register

c. Parameter Register

d. All of the above

**ANSWER: b**.

41. Which architectural scheme has a provision of two sets for address & data buses between CPU and memory?

a. Harvard architecture

b. Von-Neumann architecture

c. Princeton architecture

d. All of the above

**ANSWER: a.**

42. Which factors/parameters contribute to an effective utilization or adoption of Harvard architecture by most of the DSPs for streaming data?

a. Greater memory bandwidth

b. Predictable nature of bandwidth

c. Both a & b

d. None of the above

**ANSWER: c.**

43. Which kind of multiplexing scheme is adopted by Von-Newman architecture especially for program and data fetching purposes?

a. Time Division Multiplexing

b. Frequency Division Multiplexing

c. Statistical Time Division Multiplexing

d. Code Division Multiplexing

**ANSWER: a.**

44. Which feature deals with the fetching of next instruction during the execution of current instruction irrespective of the memory access?

a. Fetching

b. Pre-fetching

c. Fetch & Decoding

d. All of the above

**ANSWER: b.**

45. What are the essential tight constraint/s related to the design metrics of an embedded system?

a. Ability to fit on a single chip

b. Low power consumption

c. Fast data processing for real-time operations

d. All of the above

**ANSWER: d.**

46. Which abstraction level undergo the compilation process by converting a sequential program into finite-state machine and register transfers while designing an embedded system?

a. System

b. Behaviour

c. RT

d. Logic

**ANSWER: b.**

47. Which characteristics of an embedded system exhibit the responsiveness to the assortments or variations in system's environment by computing specific results for real-time applications without any kind of postponement ?

a. Single-functioned Characteristic

b. Tightly-constraint Characteristics

c. Reactive & Real time Characteristics

d. All of the above

**ANSWER: c.**

48. Which development tool / program has the potential to allocate the specific addresses so as to load the object code into memory?

a. Loader

b. Locator

c. Library

d. Linker

**ANSWER: b.**

49. The assembler list file generated by an assembler mainly includes \_\_\_\_\_\_\_\_

a. binary codes

b. assembly language statements

c. offset for each instruction

d. all of the above

**ANSWER: d.**

50. Which kind of assembler do not generate the programs in similar language as that used by micro-controllers by developing the program in high-level languages making them as machine independent?

a. Macro Assembler

b. Cross Assembler

c. Meta Assembler

d. All of the above

**ANSWER: b.**

51. What kind of address/es is /are usually assigned to program by the linker adopted in an execution of assembler?

a. Absolute Address

b. Relative Address starting from unity

c. Relative Addresss starting from zero

d. None of the above

**ANSWER: c.**

52. What does the availability of LCD in 16 x 2 typical value indicate ?

a. 16 lines per character with 2 such lines

b. 16 characters per line with 2 such lines

c. 16 pixels per line with 2 such sets

d. 16 lines per pixel with two such sets

**ANSWER: b.**

53. Which control line/s act/s as an initiator by apprising LCD about the inception of data transmission by the microcontroller?

a. Enable (EN)

b. Register Select (RS)

c. Read/Write (RW)

d. All of the above

**ANSWER: a**.

54. The display operations in LCD are undertaken on EN line with \_\_\_\_\_\_

a. 0 to 1 transitions

b. 1 to 0 transitions

c. both a & b

d. none of the above

**ANSWER: b.**

55. When can a LCD display the text form of data ?

a. only when RS line is high

b. only when RW line is high

c. only when RS line is low

d. only when RW line is low

**ANSWER: a.**