MCQ's on 8051 Microcontroller

1. In multiplication of two bytes in 8051 we must place another byte in ----------
   a) A rgister
   b) B register
   c) D register
   d) E register
2. If {A} = 11H and {B}= 22H then, ---------- program line will give multiplication in which product will be in A.
   a) MUL B,A
   b) MUL A,B
   c) MUL A,#11H
   d) MUL A,#22H
3. The operation associated with A,#FFH is ----------
   a) [A] = FFH
   b) [A] = FFD
   c) [A] = 255 H
   d) None of the above
4. T0 and T1 of 8051 are ---------- bit wide register.
   a) Four
   b) Sixteen
   c) Eight
   d) Twenty four
5. TMOD register is ---------- bit wide register.
   a) 4
   b) 8
   c) 12
   d) 16
6. Timer in 8051 is ---------- bit wide register.
   a) 4
   b) 8
   c) 16
   d) 32
7. In the program line MOV DPTR,#00H ---------- is initialized.
   a) Data pointer
   b) Stack pointer
   c) Program counter
   d) Status register
8. XRL A,#3FH is associated with ---------- logical operation.
   a) AND
   b) OR
   c) EX-OR
   d) NOT
9. Microcontroller has ---------- timer.
   a) One
   b) Two

c) Three
d) Four

10. In TMOD register M1,M0 selects ---------
    a) **Timer mode operation**.
    b) Counter mode operation
    c) Power mode operation
    d) Clock mode operation
11. When timer/counter is used as a timer ---------- is used as a source of frequency.
    a) External timer IC
    b) External counter IC
    c) External crystal to inbuilt oscillator
    d) None of the above
12. When the microcontroller executes some arithmetic operations, then the flag bits of which register are affected?
    a) **PSW**
    b) SP
    c) DPTR
    d) PC
13. TCON register is ---------- bit wide.
    a) 16
    b) 12
    c) 04
    d) 08
14. If the instruction PUSH is used to push data onto the stack then the stack pointer
    a**) increases with every push**
    b) decreases with every push
    c) increases & decreases with every push
    d) none of the mentioned
15. In byte by byte division the quotient is placed in ----------
    a) Program counter
    b) B register
    c) A register
    d) Data pointer
16. INC R5 instruction affects ----------
    a) CY flag
    b) AC flag
    c) OV flag
    d) None of the above
17. On power up, the 8051 uses which RAM locations for register R0- R7
    a) 00-2F
    b**) 00-07**
    c) 00-7F
    d) 00-0F
18. The ORG directive is used to indicate the ---------- address.
    a) Ending
    b) Data

c) **Starting**
d) Bus

19. How many bytes of bit addressable memory is present in 8051 based microcontrollers?
a) 8 bytes
b) 32 bytes
c) **16 bytes**
d) 128 bytes

20. The internal RAM memory of the 8051 is ----------
a) 32 bytes
b) 64 bytes
c) **128 bytes**
d) 256 bytes

21. The 8051 has _____ 16-bit counter/timers.
a) 1
b) **2**
c) 3
d) 4

22. Data transfer from I/O to external data memory can only be done with the -------- command.
a) MOVC
b) MOV
c) **MOVX**
d) MOV A

23. The 8051 can handle _____ interrupt sources.
a) 3
b) 4
c) **5**
d) 6

24. MOV A, @ R1 will:……..
a) copy R1 to the accumulator
b) copy the accumulator to R1
c) **copy the contents of memory whose address is in R1 to the accumulator**
d) copy the accumulator to the contents of memory whose address is in R1

25. Which pin of port 3 is has an alternative function as write control signal for external data memory?
a) P3.8 b) P3.3
c) P3.6 d) P3.1

26. Which operations are performed by the bit manipulating instructions of boolean processor?
a. Complement bit
b. Set bit
c. Clear bit
d. All of the above

27. Which register usually store the output generated by ALU in several arithmetic operations?

a. Accumulator
b. Special Function Register
c. Timer Register
d. Stack Pointer

28. Which general purpose register holds eight bit divisor and store the remainder especially after the execution of division operation?
a. A-Register
b. B-Register
c. Registers R0 through R7
d. All of the above

29. Which operations are performed by stack pointer during its incremental phase?
a. Push
b. Pop
c. Return
d. All of the above

30. Which bit/s play/s a significant role in the selection of a bank register of Program Status Word (PSW)?
a. RS1
b. RS0
c. Both a & b
d. None of the above

31. Which register bank is supposed to get selected if the values of register bank select bits RS1 & Rs0 are detected to be '0' & '1' respectively?
a. Bank 0
b. Bank 1
c. Bank 2
d. Bank 3

32. Which locations of 128 bytes on-chip additional RAM are generally reserved for special functions?
a. 80H to 0FFH
b. 70H to 0FFH
c. 90H to 0FFH
d. 60H to 0FFH

33. Which commands are used for addressing the off-chip data and associated codes respectively by data pointer?
a. MOVX & MOVC
b. MOVY & MOVB
c. MOVZ & MOVA
d. MOVC & MOVY

34. Which among the below stated registers does not belong to the category of special function registers?
a. TCON & TMOD
b. TH0 & TL0
c. P0 & P1
d. SP & PC

35. Which port does not represent quasi-bidirectional nature of I/O ports in accordance to the pin configuration of 8051 microcontroller?
a. Port 0 (Pins 32-39)
b. Port 1 (Pins 1-8)
c. Port 2 (Pins 21-28)
d. Port 3 (Pins 10-17)

36. What is the counting rate of a machine cycle in correlation to the oscillator frequency for timers?
a. 1 / 10
b. 1 / 12
c. 1 / 15
d. 1 / 20

37. Which special function register play an important role in the timer/counter mode selection process by allocating the bits in it?
a. TMOD
b. TCON
c. SCON
d. PCON

38. 8051 has ---------- math registers
a) zero
b) one
c) **two**
d) three

39. Which bit must be set in TCON register in order to start the 'Timer 0' while operating in 'Mode 0'?
a. TR0
b. TF0
c. IT0
d. IE0

40. The I/O ports that are used as address and data for external memory are:
a. ports 1 and 2
b. ports 1 and 3
c. ports 0 and 2
d. ports 0 and 3

41. Which of the following instructions will load the value 35H into the high byte of timer 0?
a. MOV TH0,35H
b. MOV TH0,#35H
c. MOV T0,#35H
d. MOV T0,35H

42. When we add two numbers the destination address must always be.
a. some immediate data
b. any register
c. accumulator
d. memory

43. If SUBB A,R4 is executed, then actually what operation is being applied?

a. R4+A
b. R4-A
c. **A-R4**
d. R4+A

44. In 8 bit signed number operations, OV flag is set to 1 if:
a. a carry is generated from D7 bit
b. a carry is generated from D3 bit
c. a carry is generated from D7 or D3 bit
d. **a carry is generated from D7 or D6 bit**

45. Which instructions have no affect on the flags of PSW?
a. ANL
b. ORL
c. XRL
d. **All of the mentioned**

46. What is the clock source for the timers in 8051?
a. Flip-flop
b. **crystal applied to the micro-controller**
c. oscillator circuit
d. LC oscillators

47. What is the function of the TMOD register?
a. **TMOD register is used to set different timer's or counter's to their appropriate modes**
b. TMOD register is used to load the count of the timer.
c. Is the destination or the final register where the result is obtained after the operation of the timer
d. Is used to interrupt the timer

48. Auto reload mode is allowed in which mode of the timer?
a. Mode 0
b. Mode 1
c. **Mode 2**
d. Mode 3

49. What steps are followed when we need to turn on any timer?
a. load the count, start the timer, keep monitoring it, stop the timer
b. **load the TMOD register, load the count, start the timer, keep monitoring it, stop the timer**
c. load the TMOD register, start the timer,load the count, keep monitoring it, stop the timer
d. none of the mentioned

50. TF1, TR1, TF0, TR0 bits are of which register?
a. TMOD
b. SCON
c. **TCON**
d. SMOD

51. Which devices are specifically being used for converting serial to parallel and from parallel to serial respectively?

a. timers
b. counters
c. **registers**
d. serial communication

52. What is the function of SCON register?
a. to control SBUF registers
b. **to program the start bit, stop bit, and data bits of framing**
c. none of the mentioned
d. to control the operation of SMOD register.

53. Which pin of the external hardware is said to exhibit INT0 interrupt?
a. pin no 10
b. pin no 11
c. **pin no 12**
d. pin no 13

54. 8051 microcontroller is of _____
a. **8 bit**
b. 16 bit
c. 32 bit
d. 64 bit

55. The 8051 supports _____
a. unsigned 8-bit numbers
b. signed 8-bit numbers
c. **both (a) & (b)**
d. none of the above

56. MOV A,R4 is an example for _____ addressing.
a. direct
b. indirect
c. **register**
d. implicit

57. 8051 is a ---------- microcontroller.
a. bit-addressable
b. byte addressable
c. **both a & b**
d. none of the above

58. The bits RS0 and RS1 in PSW register selects ----------
a. timer mode
b. counter mode
c. **register bank**
d. bit addresses

59. What changes are to be made to send data to an LCD?
a. set the R/W bit
b. set the E bit
c. **set the RS bit**
d. all of the mentioned

60. What are DPDT relays?

a. Single pole, single throw
b. Single pole, double throw
c. Double pole, double throw
d. None of the mentioned

61. When data is transmitted one way at a time then it is called as ----------
a. simplex
b. duplex
c. **Half duplex**
d. full duplex

62. In LCD pin RS is used for ---------
a. Selection of Command Register
b. Selection of Data Register
c. **Selection of Command and Data Register**
d. None of the above

63. How many rows and columns are present in a 16*2 alphanumeric LCD?
a) rows=2, columns=32
b) rows=16, columns=2
c) rows=16, columns=16
d) **rows=2, columns=16**

64. How many data lines are there in a 16*2 alphanumeric LCD?
a) 16
b) **8**
c) 1
d) 0

65. Which pin of the LCD is used for adjusting its contrast?
a) pin no 1
b) pin no 2
c**) pin no 3**
d) pin no 4

66. In Which of the mode timer can operate in the 16 bit condition?
a) mode 0
b**) mode1**
c)mode2
d) all of the mentioned

67. Bit PX1 in IP register of 8051 is used as ----------
a) **External Interrupt 0 bit**
b) External Interrupt 1 bit
c) Timer 0 interrupt bit
d) Timer 2 interrupt bit

68. buffers are used in interfacing a relay with microcontroller 8051, because ---------
a) **Current at microcontroller pin is very low**
b) Current at microcontroller pin is very high
c) Buffer is compatible with microcontroller
d) Buffers excites the voltages required for relay

69. Which out of the four ports of 8051 needs a pull-up resistor for using it is as an input or an output port?
a) **PORT 0**
b) PORT 1
c) PORT 2
d) PORT 3

70. Which addressing mode is used in pushing or popping any element on or from the stack?
a) immediate
b) **direct**
c) indirect
d) register

71. How does the processor respond to an occurrence of the interrupt?
a. **By Interrupt Service Subroutine**
b. By Interrupt Status Subroutine
c. By Interrupt Structure Subroutine
d. By Interrupt System Subroutine

72. Which of the following statements are true about DAC0808?
a) **parallel digital data to analog data conversion**
b) it has current as an output
c) all of the mentioned
d) none of the mentioned

73. What is the principle on which electromagnetic relays operate?
a) **electromagnetic induction**
b) motor control
c) switching
d) none of the mentioned

74. How can we control the speed of a stepper motor?
a) **by controlling its switching rate**
b) by controlling its torque
c) by controlling its wave drive 4 step sequence
d) cant be controlled

75. --------- pin of LCD is used to latch information presented at input pins.
a) VEE
b) W
c) RS
d) **E**

76. The rotor of a stepper motor has no
a) Windings
b) Commutator
c) Brushes
d) **All of the mentioned**

77. A stepping motor is a _____ device.
a) Mechanical
b) Electrical
c) Analogue
d) **Incremental**

78. The rotational speed of a given stepper motor is determined solely by the
a) Shaft load
b) **Step pulse frequency**
c) Polarity of stator current
d) Magnitude of stator current.

79. The main function of MODEM is _____
a) Conversion of Audio tones to 1 and 0
b) transfering data to microprocessor
c) controlling the bits
d) read/write data

80. In 8051 Microcontroller Program Counter (PC) is _____ bit register.
a) 4
b) 8
c**) 16**
d) 32

81. An ALP is saved with _____ extension filename.
a) **myprogram.asm**
b) myprogram.obj
c**)** myprogram.lst
d) myprogram.hex

82. The number of bits transmitted or received per second is defined as _____
a) transmission rate
b) reception rate
c) transceiver rate
d) **baud rate**

83. If M1=0 and M0 = 1 in TMOD Register, the mode operation will be ----------
a) Mode 0
b) **Mode 1**
c) Mode 2
d) Mode 3

84. The RETURN line comes from _____ in interfacing SWITCH with 8051
a) interrupt of 8051
b) **input port of 8051**
c) output port of 8051
d) External pin of 8051

85. The SCAN line comes from _____ in interfacing SWITCH with 8051
a) interrupt of 8051
b) input port of 8051
c) **output port of 8051**
d) External pin of 8051

86. The task of converting the byte into serial form and transmitting it bit by bit along with start, stop and parity bits is carried out by
a) reception unit
b) serial communication unit
c) **transmission unit**
d) all of the mentioned

87. Auto reload mode is allowed in which mode of the timer?
    a) Mode 0
    b) Mode 1
    c) **Mode 2**
    d) Mode 3
88. The full form of LCD is _____
    a) **Liquid Crystal Display**
    b) Liquid Crystalline Display
    c) Logical Crystal Display
    d) Logical Crystalline Display
89. The CTS pin of RS 232 is used for ----------
    a) Data Carrier detect
    b) ring indicator
    c) **clear to send**
    d) request to send
90. How many pins are there in 8051 microcontroller?
    a) 20
    b) **40**
    c) 60
    d) 80
91. In a Flow chart _____ shape states Process operation
    a) Parallelogram
    b) **Rectangle**
    c) Double sided Rectangle
    d) Oval
92. The correct method of interfacing a LED to microcontroller is to connect the _____
    a) anode of LED to Vcc (power) without resistor.
    b) cathode of LED to Vcc (power) through resistor.
    c) cathode of LED to Vcc (power) without resistor.
    d) **anode of LED to Vcc (power) through resistor.**
93. DAC 0808 is ___ Pin IC available in DIP Plastic package.
    a) 8
    b) **16**
    c) 20
    d) 40
94. 8051 has _____ Bytes of internal ROM.
    a) 2K
    b) **4K**
    c) 6K
    d) 8K
95. ADC 0808 is ___ Pin IC available in DIP Plastic package.
    a) 8
    b) 16
    c) 20
    d) **28**

96. ADC0808, is _____ A to D converter.
    a) 2 bit
    b) 4 bit
    c) **8 bit**
    d) 16 bit
97. DAC0808, has _____ D to A converter.
    a) 2 bit
    b) 4 bit
    c) **8 bit**
    d) 16 bit
98. DPTR is a _____ bit wide register
    a) 8 bit
    b) **16 bit**
    c) 32 bit
    d) 64 bit
99. The registers R0-R7 are all _____ bit register
    a) **8 bit**
    b) 16 bit
    c) 32 bit
    d) 64 bit
100. The pins XTAL1 and XTAL2 are used to form an _____
    a) generator
    b) selector
    c) vibrator
    d) **oscillator**

Alongwith this you should know about –

1. All salient features of microcontroller 8051
2. The bit pattern of all registers with functions of each bit.
3. Instruction set of 8051 microcontroller.
4. The information about all devices, their basics of operations and method of interfacing.
5. The syntax of instruction writing and addressing modes.
6. The pin diagram and functions of each pin of 8051 microcontroller.
7. The pins of different interfacing devices and their functions.
8. Timer/counter and its mode of operation with registers associated with it.
9. Architecture of 8051 microcontroller and about blocks used in it.
10. Interrupts, their names, their priorities, method of execution & registers involved in it.
11. Programming concepts and related information.