

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

B.Tech– II year I Sem (MR 20) I Mid Examination Subjective Question Bank

Subject: Microprocessors and Microcontrollers Fundamentals

Branch: CSE (IOT)

Name of the faculty: Dr. T. Srinivas Reddy

Instructions:

1. All the questions carry equal marks

2. Solve all the questions

Q.No.	Question	Bloom's Taxonomy Level	CO
Module I			
1.	Explain different number systems?	Understand	1
OR			
2.	Convert the following Binary codes to BCD, Excess-3 code 1010 b) 1100110 c) 1001001001	Apply	1
3.	Determine Binary codes for the following Gray Codes? a) 1010 b) 1100110 c) 1001001001	Apply	1
OR			
4.	Perform the conversion of following Binary Code to Gray code? a) 1010 b) 1100110 c) 1001001001	Apply	1
5.	Convert the following decimal numbers to Binary, Octal and Hexadecimal numbers? a) 99 b) 6969 c) 2021	Apply	1
OR			
6.	Find the Decimal, Octal and Hexadecimal numbers for the following binary numbers a) 101011 b) 11101 c) 10101110	Apply	1
7.	Describe how Hamming code useful for Error Detection and Correction?	Understand	1
OR			
8.	Generate Hamming code for the message bits 1010 to transmit, if the received message is 1010110. Detect the error and correct it using even parity?	Apply	1

<u>Module II</u>			
1.	Infer different addressing modes supported by 8086? Explain each of them with suitable examples	Understand	2
OR			
2.	Outline the classification of instruction set of 8086 microprocessor with suitable examples.	Understand	2
3.	Why 8086 architecture divided into two parts like BIU and EU?	Understand	2
OR			
4.	Explain the architecture of 8086 with neat diagram?	Understand	2
5.	Illustrate the need and importance of Assembler directives. Classify and explain them.	Understand	2
OR			
6.	Draw 8086 pin diagram and explain minimum mode signals?	Understand	2
7.	Describe the importance of memory segmentation in 8086 microprocessor?	Understand	2
OR			
8.	Generate output by writing an assembly language program to perform division of two 16-bit hexadecimal numbers 5678H and 1234H.	Apply	2
<u>Module III</u>			
1.	Distinguish microprocessor and microcontroller?	Understand	3
OR			
2.	Explain 8051 microcontroller architecture with a neat diagram?	Understand	3
3.	Describe addressing modes of 8051 microcontroller with an examples?	Apply	3
OR			
4.	Illustrate the classification of instruction set of 8051 microcontroller with suitable examples? Generate output by writing an assembly language program to perform addition of two 8-bit numbers using 8051 instructions?	Apply	3

Signature of the Faculty

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MALLA REDDY ENGINEERING COLLEGE

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B.Tech– II year I Sem (MR 20)

I Mid Examination Objective Question Bank

Subject: Microprocessors and Microcontrollers Fundamentals **Branch: CSE (IOT)**

Name of the faculty: Dr. T. Srinivas Reddy

- 1 Convert the following decimal number 187 to 8-bit binary number. [A]
a) 10111011 b) 11011101 c) 10111101 d) 10111100
- 2 Convert binary 111011110010 to hexadecimal. [A]
a) EF2 b) DF2 c) 2FE d) 2FD
- 3 Convert the binary number 1001.0010 to decimal. [B]
a) 90.125 b) 9.125 c) 92 d) 9.2
- 4 Convert 59.72_{10} to BCD. [B]
a) 111011 b) 1011001.011 c) 1110.11 d) 1.011E+14
- 5 Convert $8B3F_{16}$ to binary. [D]
a) 35647 b) 11010 c) 1.011E+15 d) 1.0001E+15
- 6 Which is typically the longest: bit, byte, nibble, word? [D]
a) Bit b) Byte c) Nibble d) Word
- 7 Which of the following is the most widely used alphanumeric code for computer input and output?[B]
a) Gray b) ASCII c) Parity d) BCD
- 8 Assign the proper odd parity bit to the code 111001. [B]
a) 1111011 b) 1111001 c) 111111 d) 11111
- 9 Convert decimal 64 to binary. [B]
a) 1010010 b) 1000000 c) 110110 d) 1001000
- 10 Convert hexadecimal value C1 to binary. [A]
a) 11000001 b) 1000111 c) 10100001 d) 11010001
- 11 Convert the following octal number 71 to decimal. [C]
a) 51 b) 82 c) 57 d) 15
- 12 Convert the following binary number 010111100 to octal [D]
a) 172 b) 272 c) 174 d) 274
- 13 The sum of 11101 + 10111 equals [C]
a) 110011 b) 100001 c) 110100 d) 100100
- 14 The decimal number 188 is equal to the binary number [A]
a) 10111100 b) 111000 c) 1100011 d) 1111000
- 15 How many bits are in an ASCII character? [D]
a) 16 b) 10 c) 8 d) 7
- 16 Convert 1100101000110101_2 to hexadecimal [B]
a) AC35 b) CA35 c) CA53 d) AC53
- 17 Convert the following decimal number 281 to octal. [B]
a) 134 b) 431 c) 331 d) 133
- 18 When using even parity, where is the parity bit placed? [C]
a) Before the MSB b) After the LSB c) Both A and B d) After the odd parity bit

- 19 Hexadecimal letters A through F are used for decimal equivalent values from [C]
a) 1 through 6 b) 9 through 14 c) 10 through 15 d) 11 through 17
- 20 A decimal 11 in BCD is [C]
a) 1011 b) 1100 c) 10001 d) 10010
- 21 What is the resultant binary of the decimal problem $49 + 01 = ?$ [C]
a) 1010101 b) 110101 c) 110010 d) 110001
- 22 The difference of $111 - 001$ equals _____. [C]
a) 100 b) 111 c) 110 d) 101
- 23 Convert the binary number 1100 to Gray code [B]
a) 1011 b) 1010 c) 1100 d) 1001
- 24 The binary number 11101011000111010 can be written in hexadecimal as _____. [B]
a) DD63A b) 1D63A c) 1D33A d) 1D631
- 25 Which of the following is an invalid BCD code? [C]
a) 1000 b) 1001 c) 1101 d) 111
- 26 Convert the Gray code 1011 to binary [D]
a) 1011 b) 1010 c) 1000 d) 1101
- 27 The 1's complement of 0011101 is _____. [A]
a) 1100010 b) 10011110 c) 1100001 d) 1100011
- 28 Convert the decimal number 151.75 to binary. [D]
a) 10000111.11 b) 11010011.01 c) 10111100.01 d) 10010111.11
- 29 3428 is the decimal value for which of the following binary-coded decimal (BCD) groupings? [B]
a) 1.101E+13 b) 1.101E+13 c) 1.101E+13 d) 1.11E+13
- 30 Binary-coded decimal (BCD) system can be used to represent each of the 10 decimal digits as a(n): [A]
a) 4-bit binary code b) 8-bit binary code c) 16-bit binary code d) None
- 31 The 2's complement of 00011100 is [B]
a) 111100011 b) 111100100 c) 111100111 d) 111100101
- 32 Express the decimal number -101 as an 8-bit number in sign-magnitude. [A]
a) 11100101 b) 1100101 c) 11001010 d) 11001011
- 33 The weight of the LSB as a binary number is [A]
a) 1 b) 2 c) 3 d) 4
- 34 The base of the hexadecimal system is [D]
a) 2 b) 8 c) 10 d) 16
- 35 Assign the proper even parity bit to the code 1100001 [A]
a) 11100001 b) 11000010 c) 111000011 d) 1110101
- 36 What is the decimal value of the hexadecimal number 777? [B]
a) 9111 b) 1911 c) 1191 d) 1119
- 37 Convert the following BCD number 010101101001 to decimal. [B]
a) 539 b) 1385 c) 569 d) 2551
- 38 What is the result when a decimal 5238 is converted to base 16? [D]
a) 3375 b) 2166 c) 1388 d) 1476
- 39 Digital electronics is based on the _____ numbering system [C]
a) Decimal b) Octal c) Binary d) hexadecimal
- 40 An informational signal that makes use of binary digits is considered to be [B]
a) Solid state b) Digital c) Analog d) non-oscillating
- 41 The binary number 101110101111010 can be written in octal as _____. [D]
a) 51562 b) 56577 c) 65627 d) 56572
- 42 Convert 457_{10} to hexadecimal [D]
a) 711 b) 2C7 c) 811 d) 1C9
- 43 Determine the decimal equivalent of the binary number 11110100 in 1's complement. [C]
a) 116 b) 12 c) 11 d) 128
- 44 What is the base value in octal code [B]

- 67 8086 has__ bit physical address [B]
a) 16 b) 20 c) 40 d) 8
- 68 Generation of 20-bit physical address is by multiplying Base Address by [C]
a) $(16)_{10}$ b) $(10)_{16}$ c) Both d) 8
- 69 8086 architecture divided into [C]
a) BIU b) EU c) Both d) ALU
- 70 8086 has__ no.of multiplexed address and data lines [A]
a) 16 b) 20 c) 40 d) 8
- 71 Which of the following is not an arithmetic instruction [D]
a) INC b) CMP c) DEC d) ROL
- 72 If any carry out of MSB_ flag is set to 1 [A]
a) Carry b) Parity c) Sign d) Zero
- 73 If result exceeds the capacity of destination ____ flag is going to set [C]
a) Carry b) Parity c) Overflow d) Zero
- 74 If Direction Flag is "0" [A]
a) Auto Increment b) Auto Decrement c) Both d) None
- 75 If Trap Flag is "0" [B]
a) Single step Execution b) No Single step Execution c) Both d) None
- 76 Minimum mode signal of 8086 is [D]
a) ALE b) HOLD c) HLDA d) All
- 77 Which is not a minimum mode signal of 8086 [D]
a) ALE b) HOLD c) HLDA d) READY
- 78 Which is not a maximum mode signal of 8086 [D]
a) ALE b) HOLD c) HLDA d) All
- 79 When 33 pin of 8086 is "0", 8086 works in__mode [B]
a) Minimum b) Maximum c) Idle d) Wait
- 80 Instruction Queue operates on [C]
a) FILO b) LIFO c) FIFO d) All
- 81 8086 has__ bytes of instruction queue [D]
a) 8 b) 16 c) 20 d) 6
- 82 8086 performs [D]
a) Fetching b) Decoding c) Execution d) All
- 83 8086 clock frequency is__ MHz [D]
a) 2 b) 3 c) 4 d) 5
- 84 The instruction that is used to transfer the data from source operand to destination operand is [A]
a) Data copy/transfer instruction b) Branch instruction
c) Arithmetic/logical instruction d) String instruction
- 85 Which of the following is not a data copy/transfer instruction? [C]
a) MOV b) PUSH c) DAS d) POP
- 86 Which of the following instruction is not valid? [B]
a) MOV AX, BX b) MOV DS, 5000H c) MOV AX, 5000H d) PUSH AX
- 87 In PUSH instruction, after each execution of the instruction, the stack pointer is [D]
a) Incremented by 1 b) Incremented by 2 c) Decrement by 1 d) Decrement by 2
- 88 In POP instruction, after each execution of the instruction, the stack pointer is [B]
a) Incremented by 1 b) Incremented by 2 c) Decrement by 1 d) Decrement by 2

- 89 The instructions that are used for reading an input port and writing an output port respectively are [D]
a) MOV, XCHG b) MOV, IN c) IN, MOV d) IN, OUT
- 90 The instruction that is used for finding out the codes in case of code conversion problems is [B]
a) XCHG b) XLAT c) XOR d) JCXZ
91. The instruction that loads effective address formed by destination operand into the specified source register is [A]
a) LEA b) LDS c) LES d) LAHF
- 92 The instruction that pushes the flag register on to the stack is [C]
a) PUSH b) POP c) PUSHF d) POPF
- 93 The instruction that supports addition when carry exists is [B]
a) ADD b) ADC c) Both d) None
- 94 The instruction, "INC" increases the contents of the specified register or memory location by [A]
a) 1 b) 2 c) 0 d) 3
- 95 The instruction that subtracts 1 from the contents of the specified register/memory location is [C]
a) SUB b) SUBB c) DEC d) ADC
- 96 The instruction that enables subtraction with borrow is [B]
a) SUB b) SUBB c) DEC d) ADC
- 97 The flag that acts as Borrow flag in the instruction, SBB is [B]
a) Direction flag b) carry flag c) parity flag d) trap flag
- 98 In general, the source operand of an instruction can be [D]
a) Memory location b) register c) immediate data d) All
- 99 The instruction, MOV AX, 0005H belongs to the address mode [C]
a) Register b) direct c) immediate d) Indirect
- 100 The instruction, MOV AX,[BX] is an example of_ addressing mode [D]
a) Direct b) register c) relative d) indirect
- 101 8051 microcontrollers are manufactured by which of the following companies? [D]
a) Atmel b) Philips c) Intel d) All
- 102 AT89C8051 has RAM of_ bytes [A]
a) 128 b) 256 c) 4k d) 512
- 103 8051 series has how many 16 bit registers [B]
a) 1 b) 2 c)3 d) 4
- 104 When 8051 wakes up then 0x00 is loaded to which register? [C]
a) PSW b) SP c) PC d) A
- 105 When the microcontroller executes some arithmetic operations, then the flag bits of which register are affected? [C]
a) PSW b) SP c) PC d) A
- 106 How are the bits of the register PSW affected if we select Bank2 of 8051? [D]
a) PSW.5=0 and PSW.4=1 b) PSW.2=0 and PSW.3=1
c) PSW.3=1 and PSW.4=1 d) PSW.3=0 and PSW.4=1
- 107 On power up, the 8051 uses which RAM locations for register R0- R7 [B]
a) 00-2F b) 00-07 c) 00-7F d) 00-0F
- 108 How many bytes of bit addressable memory is present in 8051? [B]
a) 8 b) 16 c) 32 d) 128

- 109 Which out of the four ports of 8051 needs a pull-up resistor for using it as an input or an output port? [A]
 a) PORT 0 b) PORT 1 c) PORT 2 d) PORT 3
- 110 Which of the ports act as the 16 bit address lines for transferring data through it [C]
 a) PORT 0 and PORT 1 b) PORT 1 and PORT 2
 c) PORT 0 and PORT 2 d) PORT 1 and PORT 3
- 111 Which of the following registers are not bit addressable? [B]
 a) SCON b) PCON c) A d) PSW
- 112 Which instruction is used to check the status of a single bit? [C]
 a) MOV A, P0 b) ADD A,#05H c) JNB PO.0, label d) CLR P0.05H
- 113 Which operator is the most important while assigning any instruction as register indirect instruction? [C]
 a) \$ b) # c) @ d) &
- 114 Which of the following comes under the indexed addressing mode? [B]
 a) MOVX A, @DPTR b) MOVC @A+DPTR,A c) MOV A,R0 d) MOV @R0,A
- 115 Which of the following is an instruction of 8051 instructions? [D]
 a) arithmetic b) boolean c) logical d) All
- 116 The logical instruction that affects the carry flag during its execution is [D]
 a) XRL A b) ANL A c) ORL A d) RLC A
- 117 The instruction that is used to complement the bit of a bit addressable SFR is [C]
 a) CLR C b) CPL C c) CPL Bit d) ANL Bit
- 118 All conditional jumps are [C]
 a) absolute b) long c) short d) None
- 119 Which of the following is an 8-bit register? [D]
 a) PSW b) TCON c) SCON d) All
- 120 Which of the following register can be addressed as a byte? [D]
 a) PSW b) TCON c) SCON d) TMOD
- 121 Which of the following is bit-addressable register? [A]
 a) SCON b) PCON c) TMOD d) SBUF
- 122 The register that is used for accessing external data memory is [C]
 a) DPH b) DPL c) DPTR d) None
- 123 The number of 8-bit registers that a register bank contains is [D]
 a) 2 b) 4 c) 6 d) 8
- 124 If RS1=1, RS0=0, then the register bank selected is [C]
 a) bank 0 b) bank 1 c) bank2 d) bank 3
- 125 If RS1=1, RS0=0, then the register bank selected is [D]
 a) bank 0 b) bank 1 c) bank2 d) bank 3

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