Dr. MAHALINGAM
COLLEGE OF ENGINEERING AND TECHNOLOGY
Enlightening Technical Minds Estd. 1998
An Autonomous Institution
(Since 2011)

Dr. MAHALINGAM
COLLEGE OF ENGINEERING AND TECHNOLOGY
Affiliated to Anna University, Chennai; Approved by AICTE ; Accredited by NAAC with Grade 'A++'
Accredited by NBA - Tier1 (Mech, Auto, Civil, EEE, ECE, EIE and CSE)
Udumalai Road, Pollachi - 642 003. Tel: 04259-236030/40/50 Fax: 04259-236070 www.mcet.in

Question Bank

Microprocessor and Microcontroller

DEPARTMENT OF

ELECTRONICS AND INSTRUMENTATION

ENGINEERING

DEPARTMENT OF ELECTRONICS & INSTRUMENTATION ENGINEERING

MICROPROCESSOR AND MICROCONTROLLER

QUESTION BANK

S. No	Question	Mark	CO	Level	Answer
1.	The instruction is decoded in _____ register and provides information used by the timing and control section to generate sequence of elementary operations. a)Instruction b)Stack pointer c)Program Counter d)Decoder	1	1	U	a
2.	Intel 8085 is a _____ bit microprocessor. a) 4 bit b) 8 bit c) 16 bit d) 32 bit	1	1	U	b
3.	Calculate the required address lines to access the 2KB memory. a)8 b) 9 c)10 d)11	1	1	U	d
4.	Time taken by the processor to complete the execution of an instruction is a)Execution cycle b)T-State c)Machine cycle d)Instruction Cycle	1	1	U	d
5.	The time required to complete one operation; accessing either the memory or I/O device is a)Execution cycle b)T-State c)Machine cycle d)Instruction Cycle	1	1	U	c
6.	Time corresponding to one clock period and the basic unit to calculate execution of instructions or programs in a processor is a)Execution cycle b)T-State c)Machine cycle d)Instruction Cycle	1	1	U	b
7.	_____ determines the total time required to decode the instruction fetched and executing.	1	1	U	Execute Cycle
8.	A reset in sign flag represents a a)Positive Number b)Negative number c) Infinity d)Zero	1	1	U	a
9.	A set sign flag represents a a)Positive Number b)Negative number c) Infinity d)Zero	1	1	U	b
10.	In response to RST 7.5 interrupt, the execution of control transfers to memory location... a) 0000H b) 002CH c) 0034H d) 003CH	1	1	U	d

S. No	Question	Mark	CO	Level	Answer
11.	Which of following is both level and edge sensitive? a) RST 7.5 b) RST 5.5 c) TRAP d) INTR	1	1	U	
12.	Which interrupt in 8085 has least priority?	1	1	U	INTR
13.	Among the following which interrupt of 8085 has least priority? a)TRAP b)RST7.5 c)RST6.5 d)RST5.5	1	1	U	d
14.	Which interrupt in 8085 has higher priority a)TRAP b)RST7.5 c)RST6.5 d)RST5.5	1	1	U	a
15.	_____ control signal is provided for the user to use it to RESET all the peripheral devices to their initial states.	1	1	U	RESET OUT
16.	Which interrupt is non-maskable?	1	1	U	TRAP
17.	Reset signal is held low for _____ clock period.	1	1	U	3
18.	Reset signal is held low for _____ seconds	1	1	U	600nano
19.	_____ is used to distinguish whether the AD7 – AD0 bus contains address bits A7 – A0 or data bits D7- D0.	1	1	U	ALE
20.	Memory sections often subdivided into units called	1	1	U	pages
21.	_____ unit provides necessary timing & control signals required for the operation of microcomputer	1	1	U	Control Unit
22.	_____ are used primarily to store data temporarily during the execution of a program	1	1	U	Registers
23.	_____ unit performs computing functions on m-bit data where ‘m’ is the bit size of the processor	1	1	U	ALU
24.	The microprocessor design engineer selects combinations of bit patterns and gives a specific meaning to each combination by using electronic logic circuits is called as	1	1	U	i**nstruction**

S. No	Question	Mark	CO	Level	Answer
25.	The communication line between the CPU, memory and peripherals is called a a) Bus b) line c) media d) none of these	1	1	U	a
26.	The advantage of memory mapped i/o over i/o mapped i/o is _____ a) Faster b) Many instructions supporting memory mapped i/o c) Require a bigger address decoder d) All of the above.	1	1	U	d
27.	State the role of address bus.	2	1	U	
28.	State the role of data bus.	2	1	U	
29.	State the role of control bus.	2	1	U	
30.	Write a short note on PSW.	2	1	U	
31.	What is ALE? Explain the functions of ALE in 8085	2	1	U	
32.	What is the need for timing diagram? The timing diagram provides information regarding the status of various signals, when a machine cycle is executed. The knowledge of timing diagram is essential for system designer to select matched peripheral devices like memories, latches, ports etc from a microprocessor system.	2	1	U	
33.	State the importance of pipelining.	2	1	U	
34.	Write a short note on microprocessor.	2	1	U	
35.	State few applications of microprocessor.	2	1	U	
36.	List the basic functions of ALU.	2	1	U	
37.	List the basic functions of control unit.	2	1	U	
38.	Write a short note on memory.	2	1	U	
39.	Classify the memories.	2	1	U	
40.	Crystal oscillators are preferable for microprocessor interfacing over RC or LC oscillators. Justify	2	1	U	
41.	Write a short note on stack pointer.	2	1	U	
42.	Write a short note on program counter.	2	1	U	
43.	State the purpose of Instruction register and instruction decoder.	2	1	U	
44.	Compare Harvard and Princeton architecture	2	1	U	
45.	List the stages in 4 state and 6 state pipelining.	2	1	U	
46.	List the interrupts of 8085 with their vector location.	2	1	U	

<table>
<tr><th>S. No</th><th>Question</th><th>Mark</th><th>CO</th><th>Level</th><th>Answer</th></tr>
<tr><td>47.</td><td>Write a short note on flag register of 8085.</td><td>2</td><td>1</td><td>U</td><td></td></tr>
<tr><td>48.</td><td>Difference between memory mapped I/o and I/O mapped I/o?
<table>
<tr><th>Memory Mapped I/O</th><th>I/O mapped I/o</th></tr>
<tr><td>In this device address is 16- bit. Thus Ao to A15 lines are used to generate the device address</td><td>In this device address is 8-bit. Thus Ao to A7 or A8 to A15 lines are used to generate device address.</td></tr>
<tr><td>MEMR and MEMW control signals are used to control read and write I/O operations.</td><td>IOR and IOW control signals are used to control read and write I/O operations.</td></tr>
<tr><td>Instructions available are LDA,STA,MOV R,M , ADD M etc</td><td>Instructions available are IN and OUT.</td></tr>
<tr><td>Data transfer is between any register and I/O device.</td><td>Data transfer is between accumulator and I/O device.</td></tr>
<tr><td>Decoding 16-bit address may require more hardware.</td><td>Decoding 8-bit address will require less hardware.</td></tr>
</table></td><td></td><td></td><td></td><td></td></tr>
<tr><td>49.</td><td>Summarize the different blocks and their roles in architecture of 8085 Microprocessor.</td><td>15</td><td>1</td><td>U</td><td></td></tr>
<tr><td>50.</td><td>Draw the pin details of 8085 microprocessor and explain the purpose of each pin.</td><td>15</td><td>1</td><td>U</td><td></td></tr>
<tr><td>51.</td><td>Explain in detail about the interrupts of 8085.</td><td>15</td><td>1</td><td>U</td><td></td></tr>
<tr><td>52.</td><td>Write a brief note on Harvard and Princeton architecture</td><td>15</td><td>1</td><td>U</td><td></td></tr>
<tr><td>53.</td><td>Write a brief note on pipelining.</td><td>15</td><td>1</td><td>U</td><td></td></tr>
<tr><td>54.</td><td>The first part of an instruction which specifies the task to be performed by the computer is called _____
a) opcode b) operand c) instruction cycle d) fetch cycle</td><td>1</td><td>2</td><td>U</td><td>a</td></tr>
<tr><td>55.</td><td>The second part of the instruction is the data to be operated on, and it is called _____
a) opcode b) operand c) instruction cycle d) fetch cycle</td><td>1</td><td>2</td><td>U</td><td>b</td></tr>
<tr><td>56.</td><td>Which of the following is a one-byte instruction?
a) MVI B, 05 b) LDA 2500H c) IN 01 d) MOV A,B</td><td>1</td><td>2</td><td>U</td><td>d</td></tr>
<tr><td>57.</td><td>Which of the following is a two-byte instruction?</td><td>1</td><td>2</td><td>U</td><td></td></tr>
</table>

S. No	Question	Mark	CO	Level	Answer
	a) MVI B, 05 b) LDA 2500H c) IN 01 d) both a and c				
58.	The language that the computer can understand and execute is called _____ a) Machine language b) Application software c) System program d) None of the above	1	2	U	a
59.	In _____ type of addressing mode, the operand is available directly in the instruction itself.	1	2	U	Immediate
60.	The instruction specifies a register pair which contains the address of the memory where the data is located or into which the data in to be placed, is of _____ addressing mode	1	2	U	Register indirect
61.	_____ addressing mode, the instruction contains the address of the operand (external register) involved in the transfer	1	2	U	Direct
62.	When the operands for any instruction are available in internal general purpose registers, then it is said to be _____ addressing mode.	1	2	U	Register
63.	The method of identifying the operands position by the instruction format is known as _____.	1	2	U	addressing mode
64.	The contents of accumulator after the execution of following instructions will be MVI A, B7H ORA A RAL a)6EH b) 4FH c) EEH d)EFH	1	2	U	a
65.	To save accumulator value on to the stack, which of the following instructions may be used.. a) PUSH PSW b) PUSH A c) PUSH SP d) POP PSW	1	2	U	a
66.	MVI A,00 MVI B,0F ADI 0C After executing the above instructions which flags in the Flag Register will get affected a)Zero Flag b)Parity Flag	1	2	U	b

S. No	Question	Mark	CO	Level	Answer
	c) Carry Flag d)Auxiliary Carry Flag				
67.	The microprocessor 8085 has _____ basic instructions and _____ opcodes. a) 80, 246 b) 70, 346 c) 80, 346 d) 70, 246	1	2	U	a
68.	The status that cannot be operated by direct instructions is a) Cy b) Z c) P d) AC	1	2	U	d
69.	What is SIM? a) Select interrupt mask b) Sorting interrupt mask c) Set interrupt mask d) Softer interrupt mask	1	2	U	c
70.	To reset carry without affecting accumulator contents, we have to use a) SUB A b) XRA A c) ORA A d) CMC	1	2	U	c
71.	In order to complement the lower order nibble of the accumulator, we can use … a) ANI 0FH b) XRI 0FH c) ORI 0FH d) CMA	1	2	U	b
72.	Which of the following instruction will never affect the zero flag.. a)DCR reg b) ORA reg c) DCX rp d) XRA reg	1	2	U	c
73.	A single instruction to clear the lower 4 bits of accumulator in 8085 alp is……. a) XRI 0FH b) ANI F0 H c) XRI F0H d)ANI 0FH				b
74.	List the types of rotate instructions.	2	2	U	
75.	Calculate the execution time period for the given program by assuming clock period for 8085 microprocessor is 2MHz. MVI B, FF XXX: DCR B JNZ XXX	2	2	U	
76.	Write a short note on data transfer operations.	2	2	U	
77.	Write a short note on arithmetic operations.	2	2	U	
78.	Write a short note on logical operations.	2	2	U	

S. No	Question	Mark	CO	Level	Answer
79.	Write a short note on branching operations.	2	2	U	
80.	Write a short note on machine control operations.	2	2	U	
81.	Classify the instructions based on word size.	2	2	U	
82.	Write a short note on register addressing mode with example.	2	2	U	
83.	Write a short note on direct addressing mode with example.	2	2	U	
84.	Write a short note on register indirect addressing mode with example.	2	2	U	
85.	Write a short note on immediate addressing mode with example.	2	2	U	
86.	ii) Write an ALP for dividing two 8-bit numbers. (7 Mark) ii) Write an ALP to sort the given numbers in descending order. (8 Mark)	15	2	U	
87.	ii) Write an ALP for multiplying two 8-bit numbers. (7 Mark) ii) Write an ALP to sort the given numbers in ascending order. (8 Mark)	15	2	U	
88.	ii) Write an ALP for adding two 8-bit numbers. (7 Mark) ii) Write an ALP to find the largest number in the given numbers (8 Mark)	15	2	U	
89.	ii) Write an ALP for subtracting two 8-bit numbers. (7 Mark) ii) Write an ALP to find the smallest number in the given numbers. (8 Mark)	15	2	U	
90.	ii) Write an ALP for subtracting two 16-bit numbers. (7 Mark) ii) Write an ALP for adding two 16-bit numbers. (8 Mark)	15	2	U	
91.	i)Write an ALP for converting given Hexadecimal ACII value to graphical value. ii) Write an ALP for converting given hexadecimal value to BCD value.	15	2	U	
92.	i)Write an ALP for converting given binary value to ASCII value. ii) Write an ALP for converting given ASCII value to Binary value.	15	2	U	

S. No	Question	Mark	CO	Level	Answer
93.	With suitable example explain the addressing modes of 8085.	15	2	U	
94.	With suitable example explain and classify the instructions of 8085.	15	2	U	
95.	In which mode Port C bits can be set or reset in 8255? a)BSR b)0 c)1 d)2	1	3	U	a
96.	In which mode all Ports of 8255 functions as simple I/O ports? a)BSR b)0 c)1 d)2	1	3	U	b
97.	In which mode Port C of 8255 used as handshake signals for Port A & B? a)BSR b)0 c)1 d)2	1	3	U	c
98.	In which mode Port A of 8255 used for bidirectional data transfer using handshake signals from Port C? a)BSR b)0 c)1 d)2	1	3	U	d
99.	In the _____mode, if two keys are pressed simultaneously, only the first key is recognized.	1	3	U	**two key lockout**
100.	In the _____mode, simultaneous keys are recognized and their codes are stored in the internal buffer	1	3	U	N-key rollover
101.	Using _____ pin the display can be blanked in 8279.	1	3	U	Blank Display (BD)
102.	In software technique time range to avoid key debounce is a)10 to 20 us b)10 to 20 ms c)10 to 20ns d) 10 to 20ps	1	3	U	b
103.	The _____ Register stores all the interrupt levels that are currently being serviced. a)Interrupt Request b)Interrupt Mask c) In-Service d)Priority Resolver	1	3	U	c
104.	Howmany interrupt levels are available in 8259? a)8 b)16 c)32 d)64	1	3	U	a
105.	Interrupts of 8259 can be expanded to _____ priority levels by cascading additional 8259. a)8 b)16 c)32 d)64	1	3	U	d
106.	The _____ Register stores the request of interrupts. a)Interrupt Request b)Interrupt Mask c) In-Service d)Priority Resolver	1	3	U	A

S. No	Question	Mark	CO	Level	Answer
107.	The _____ Register stores the masking bits of the interrupt lines to be masked. a)Interrupt Request b)Interrupt Mask c) In-Service d)Priority Resolver	1	3	U	B
108.	_____ examines the registers and determines whether INT should be sent to the MPU. a)Interrupt Request b)Interrupt Mask c) In-Service d)Priority Resolver	1	3	U	D
109.	_____ device establishes serial communication over telephone lines	1	3	U	Modem
110.	_____ is used for high speed data transfer.	1	3	U	DMA
111.	_____ pin of 8085 is used by DMA controller for requesting the use of the address and data buses.	1	3	U	HOLD
112.	_____ pin of 8085 is used by DMA controller to indicate that the MPU is relinquishing control of the buses.	1	3	U	HLDA
113.	Each channel in DMA 8237 is capable of transferring _____ bytes of data a)64 b)64K c)128 d)128K	1	3	U	b
114.	DMA interfaced with 8085, in this condition DMA acts in _____ mode.	1	3	U	Slave
115.	DMA interfaced with CD driver, in this condition DMA acts in _____ mode.	1	3	U	Master
116.	Write a short note on 8255.	2	3	U	
117.	Write a short note on BSR mode of 8255.	2	3	U	
118.	Write a short note on Mode0 of 8255.	2	3	U	
119.	Write a short note on Mode1 of 8255.	2	3	U	
120.	Write a short note on Mode2 of 8255.	2	3	U	
121.	Explain the bits in control word register of 8255.	2	3	U	
122.	Write a BSR control word subroutine to set bits PC7 and PC3 and reset them after 10ms.	2	3	U	
123.	Write a program to read the switches and display the reading from PORTB at PORTA and from PORTC lower at PORTC upper.	2	3	U	
124.	State the methods to avoid key debouncing.	2	3	U	
125.	State the modes of keyboard operation in 8279.	2	3	U	
126.	Compare interrupts of 8085 with 8259.	2	3	U	

S. No	Question	Mark	CO	Level	Answer
127.	List the modes of resolving eight levels of interrupt priorities.	2	3	U	
128.	Write a short note on fully nested mode in 8259.	2	3	U	
129.	Write a short note on automatic rotation mode in 8259.	2	3	U	
130.	Write a short note on specific rotation mode in 8259.	2	3	U	
131.	Compare serial and parallel communication.	2	3	U	
132.	Write the steps involved in programming 8237.	2	3	U	
133.	With suitable diagram explain the architecture of 8255.	15	3	U	
134.	With suitable diagram explain the architecture of 8279.	15	3	U	
135.	With suitable diagram explain the architecture of 8259.	15	3	U	
136.	With suitable diagram explain the architecture of 8251.	15	3	U	
137.	With suitable diagram explain the architecture of DMA controller.	15	3	U	
138.	Explain the various modes of operation in 8255.	15	3	U	
139.	Explain the steps involved in programming 8259.	15	3	U	
140.	Design a traffic light controller system using 8085 and 8255.	15	3	U	
141.	With 12MHz crystal oscillator the execution speed of instruction cycle is	1	4	U	1 microsecond
142.	Which port is multiplexed with Address/Data pins	1	4	U	Port 0
143.	Upon reset all the registers except PC will reset to _____ Value and PC register will reset to _____ value. a) 0000 & 0007 b) 0000 & 0000 c) 0007 & 0000 d) 0007 & 0007	1	4	U	a
144.	_____ pin is connected to ground when microcontroller is accessing the program code stored in the external memory.	1	4	U	EA
145.	____ pin is connected to Vcc when it is accessing the program code in the on chip memory.	1	4	U	EA
146.	When the microcontroller is accessing the program code stored in the external ROM, _____ pin is connected to the OE (Output Enable) pin of the ROM	1	4	U	PSEN
147.	_____ Points to the address of next instruction to be executed from ROM	1	4	U	Program Counter
148.	Which of the following flag in 8051 microcontroller is not available? a)Carry b)Auxiliary Carry c)Overflow d)Zero	1	4	U	d

S. No	Question	Mark	CO	Level	Answer
149.	If Accumulator holds even number of 1s then which flag will set? a)Carry b)Auxiliary Carry c)Overflow d)Parity	1	4	U	d
150.	_____ flag is used to detect error in signed arithmetic operation. a)Carry b)Auxiliary Carry c)Overflow d)Parity	1	4	U	c
151.	When carry is generated from D3 to D4, which flag will get set. a)Carry b)Auxiliary Carry c)Overflow d)Parity	1	4	U	b
152.	RAM locations from 08H to 1FH can be used as	1	4	U	Stack
153.	Stack pointer initially pointed to which memory location a)07 b)08 c)1F d)20	1	4	U	a
154.	_____ register is used to configure the timers in 8051 microcontroller.	1	4	U	TMOD
155.	_____ register is used to control the timers in 8051 microcontroller.	1	4	U	TCON
156.	_____ register is used to configure the serial operation in 8051 microcontroller.	1	4	U	SCON
157.	Which register is used to hold data for both serial transmitting and receiving?	1	4	U	SBUF
158.	_____ bytes of internal RAM is available in 8051.	1	4	U	128
159.	_____ KB of onchip ROM is available in 8051.	1	4	U	4
160.	Calculate the address line required to interface 4KB of external memory. a)10 b)11 c)12 c)13	1	4	U	c
161.	Which register is used to select the register banks of 8051?	1	4	U	PSW
162.	_____ bits in PSW is used to select the register banks of 8051.	1	4	U	RS0 & RS1
163.	Which of the following instruction is used to jump from -128 to +128 bytes of the contents in PC? a)ACALL b)LCALL c)LJMP d)SJMP	1	4	U	d
164.	Which of the following instruction is used to jump anywhere from 0000 to FFFF memory location? a)ACALL b)LCALL c)LJMP d)SJMP	1	4	U	c
165.	Which of the following instruction is used to call the subroutine within the range of 2KB in memory location? a)ACALL b)LCALL c)LJMP d)SJMP	1	4	U	a
166.	Which of the following instruction is used to call the subroutine within the range of 64KB in memory location? a)ACALL b)LCALL c)LJMP d)SJMP	1	4	U	b
167.	In multiplication operation, MSB of the result will be available in _____ register and LSB	1	4	U	B & A

S. No	Question	Mark	CO	Level	Answer
	available in _____ register.				
168.	In division operation, Remainder will be available in _____ register and quotient will be available in _____ register.	1	4	U	B & A
169.	Which flag gets SET if the result is above FF in multiplication operation? a)Carry b)Overflow c)Parity d)Auxiliary Carry	1	4	U	b
170.	Which flag gets SET if the dividend is zero in division operation? a)Carry b)Overflow c)Parity d)Auxiliary Carry	1	4	U	b
171.	MOV @R1,A is an example for a) Direct addressing mode b)Immediate addressing mode c)Register addressing mode d) Register indirect addressing mode	1	4	U	d
172.	ADD A,R0 is an example for a)Arithmetic addressing mode b)Immediate addressing mode c)Register addressing mode d)Direct addressing mode	1	4	U	c
173.	Which port requires external pull up connection?	1	4	U	Port 0
174.	Which mode of timer will act as Split timer? a)0 b)1 c)2 d)3	1	4	U	D
175.	Which mode of timer will act as 8 bit auto reload? a)0 b)1 c)2 d)3	1	4	U	C
176.	Which mode of timer will act as 16 bit timer? a)0 b)1 c)2 d)3	1	4	U	B
177.	Which mode of timer will act as 13 bit timer? a)0 b)1 c)2 d)3	1	4	U	A
178.	Which signal is used to start the timer? a)GATE b)C/T c)TR d)TF	1	4	U	C (Timer Run)
179.	The hardware way of starting and stopping the timer by an external source is achieved by making _____ as set in the TMOD register. a)Gate b)C/T c)M1 d)M0	1	4	U	A
180.	Which timer and mode is used for serial communication? a)0 & 1 b)0 & 2 c)1&1 d)1&2	1	4	U	D
181.	External Interrupt flags are _____ sensitive if IT bit TCON register is set.	1	4	U	Edge
182.	External Interrupt flags are _____ sensitive if IT bit TCON register is reset.	1	4	U	Level
183.	Vector address for Serial Interrupt is	1	4	U	e

S. No	Question	Mark	CO	Level	Answer
	a)0003H b)000BH c)0013H d)001BH e)0023H				
184.	Vector address for Timer 1 Interrupt is a)0003H b)000BH c)0013H d)001BH e)0023H	1	4	U	d
185.	Vector address for Timer 0 Interrupt is a)0003H b)000BH c)0013H d)001BH e)0023H	1	4	U	B
186.	Vector address for External Interrupt 1 Interrupt is a)0003H b)000BH c)0013H d)001BH e)0023H	1	4	U	c
187.	Vector address for External Interrupt 0 Interrupt is a)0003H b)000BH c)0013H d)001BH e)0023H	1	4	U	a
188.	Which of the following interrupt is having highest priority? a)EXTI0 b)EXTI1 c)Timer 0 d)Timer 1 e)Serial	1	4	U	a
189.	Which of the following interrupt is having least priority? a)EXTI0 b)EXTI1 c)Timer 0 d)Timer 1 e)Serial	1	4	U	e
190.	Differentiate microprocessor and microcontroller.	2	4	U	
191.	List the features of 8051 microcontroller.	2	4	U	
192.	Draw the memory organization of 8051.	2	4	U	
193.	Write a short note on Immediate addressing mode.	2	4	U	
194.	Write a short note on direct addressing mode.	2	4	U	
195.	Write a short note on indirect addressing mode.	2	4	U	
196.	Write a short note on register indirect addressing mode.	2	4	U	
197.	Write a short note on indexed addressing mode.	2	4	U	
198.	Write a test program for the 8051 chip to toggle all the bits of P0,P1 and P2 after a delay.	2	4	U	
199.	Write a program to perform 8-bit addition in 8051.	2	4	U	
200.	Write a program to perform 8-bit subtraction in 8051.	2	4	U	
201.	Write a program to perform 8-bit multiplication in 8051.	2	4	U	
202.	Write a program to perform 8-bit division in 8051.	2	4	U	
203.	Write a program to generate a square waveform from bit0 of port1	2	4	U	
204.	A switch is connected to pin P1.7 and an LED to pin P2.0. Write a program to get the status of the switch and send it to the LED	2	4	U	
205.	Assume that bit P2.3 is an input and represents the condition of an oven. If it goes high,	2	4	U	

S. No	Question	Mark	CO	Level	Answer
	it means that the oven is hot. Monitor the bit continuously. Whenever it goes high, send a high-to-low pulse to port P1.5 to turn on a buzzer				
206.	A switch is connected to pin P1.7. Write a program to check the status of the switch and make the following decision. (a) If SW = 0, send “0” to P2 (b) If SW = 1, send “1“ to P2	2	4	U	
207.	Write a short note on TMOD register.	2	4	U	
208.	Write a short note on TCON register.	2	4	U	
209.	Write a short note on Mode 1 operation of 8051.	2	4	U	
210.	Indicate which mode and which timer are selected for each of the following. (a) MOV TMOD, #01H (b) MOV TMOD, #20H (c) MOV TMOD, #12H	2	4	U	
211.	Find the timer’s clock frequency and its period for various 8051-based system, with the crystal frequency 11.0592 MHz when C/T bit of TMOD is 0.	2	4	U	
212.	Write a short note on Mode 2 operation of 8051	2	4	U	
213.	Write a short note on Mode 0 and Mode 3 operation of 8051	2	4	U	
214.	Define Baud rate.	2	4	U	
215.	Write the steps to transfer data serially.	2	4	U	
216.	Write the steps to Receive data serially.	2	4	U	
217.	Write a short note on SCON register.	2	4	U	
218.	List the different options to double the baud rate.	2	4	U	
219.	Write a program to receive the data which has been sent in serial form and send it out to port 0 in parallel form. Also save the data at RAM location 60H.	2	4	U	
220.	Write a program to transfer a letter ‘Y’ serially at 9600 baud continuously, and also to send a letter ‘N’ through Port 0, which is connected to a display device.	2	4	U	
221.	Compare polling and interrupts.	2	4	U	
222.	Write a short note on ISR or Interrupt Handler.	2	4	U	
223.	List the steps in executing an interrupt.	2	4	U	
224.	List the various interrupts in 8051.	2	4	U	
225.	Write a short note on EI register.	2	4	U	
226.	Write a short note on IP register.	2	4	U	
227.	Draw the architecture of 8051 microcontroller and explain the blocks in it.	15	4	U	

S. No	Question	Mark	CO	Level	Answer
228.	Draw the pin details of 8051 microcontroller and explain the purpose of each pins.	15	4	U	
229.	With suitable examples explain the addressing modes and instruction sets of 8051.	15	4	U	
230.	Write a brief note on interrupts of 8051.	15	4	U	
231.	Write a brief note on timers in 8051.	15	4	U	
232.	Write a brief note on serial communication in 8051.	15	4	U	
233.	Write a brief note on I/O port configuration in 8051.	10	4	U	
234.	Which pin is used to adjust the contrast in LCD? a)Vcc b)Vss c)Vee d)Vdd	1	5	U	c
235.	If RS=0, then which register in LCD will be selected? a)Command b)Data c)Internal d)Initialization	1	5	U	a
236.	If RS=0, then which register in LCD will be selected? a)Command b)Data c)Internal d)Initialization	1	5	U	b
237.	The width of Enable pulse to LCD should be of a)450ns b)450us c)450ms d)450s	1	5	U	a
238.	Which pin of LCD will check busy status of LCD? a)RS b)RW c)Interrupt d)D7	1	5	U	d
239.	8-bit ADC will have the step size of a)19.53mV b)4.88mV c)1.2mV d)0.076mV	1	5	U	a
240.	10-bit ADC will have the step size of a)19.53mV b)4.88mV c)1.2mV d)0.076mV	1	5	U	b
241.	12-bit ADC will have the step size of a)19.53mV b)4.88mV c)1.2mV d)0.076mV	1	5	U	c
242.	16-bit ADC will have the step size of a)19.53mV b)4.88mV c)1.2mV d)0.076mV	1	5	U	d
243.	_____ is defined as the time it takes the ADC to convert the analog input to a digital (binary) number.	1	5	U	Conversion time
244.	Conversion time varies depending on the _____signals applied to the CLK R and CLK IN pins.	1	5	U	clocking
245.	The fastest conversion time of ADC0804 is a)110S b)110ms c)110us d)110ns	1	5	U	c
246.	Calculate the conversion time of ADC0804, if R=10K ohm and C=150pF.	1	5	U	110us
247.	Input signal to ADC ranges from o to 3V, then reference voltage given to ADC0804 is	1	5	U	d

S. No	Question	Mark	CO	Level	Answer
	a)5V b)3V c)2.5V d)1.5V				
248.	Converted digital value from ADC can be accessed only if _____and _____ pins are active. a)CS and WR b)CS and RD c)CS and INTR d)RD and INTR	1	5	U	c
249.	Which pin in ADC0804 is also known as 'Start of Conversion'? a)CS b)WR c)RD d)INTR	1	5	U	b
250.	Which pin in ADC0804 is also known as 'End of Conversion'? a)CS b)WR c)RD d)INTR	1	5	U	d
251.	Which flip-flop is used to divide the frequency of microcontroller and supply it to ADC0804? a)D b)T c)SR d)JK	1	5	U	a
252.	D flip flop divides the higher frequency by ____ if we connect its $\bar{Q}$ to the D input. a)2 b)4 c)8 d)16	1	5	U	a
253.	How many D-flipflops are used to divide 8051 crystal oscillator frequency and supplied to ADc0804? a)2 b)4 c)8 d)16	1	5	U	b
254.	Which series of temperature sensor output voltage is linearly proportional to the celsius (centigrade) temperature? a)LM24 b)LM25 c)LM34 d)LM35	1	5	U	d
255.	Which series of temperature sensor output voltage is linearly proportional to the Fahrenheit (centigrade) temperature? a)LM24 b)LM25 c)LM34 d)LM35	1	5	U	c
256.	_____ is used to overcome any fluctuations in the power supply while connecting POT to ADC0804.	1	5	U	Zener diode(LM336-2.5)
257.	_____ method of DAC is used in DAC0808	1	5	U	R-2R Ladder
258.	The output of DAC IC is	1	5	U	Current
259.	Which form of H-bridge circuit is more preferable? a)Relay b)Transistor c)L293 d)All the above	1	5	U	c
260.	The speed of motor does not depend on which of the following factor? a)Load b)Voltage c)Current d)Time	1	5	U	d
261.	The PWM signals have _____ amplitude and _____ duty cycle.	1	5	U	Fixed and Variable
262.	Wider pulse of PWM _____ speed of the DC motor.	1	5	U	Increases
263.	_____ device uses a short optical transmission path to transfer an electrical signal	1	5	U	Optocoupler or

S. No	Question	Mark	CO	Level	Answer
	between circuits or elements of a circuit, while keeping them electrically isolated from each other.				Optoisolator
264.	Which command used to clear the data internal register of LCD? a)01 b)38 c)06 d)80	1	5	U	a
265.	Which command used to display the character from the position of 1st row and 1st column of LCD? a)01 b)38 c)06 d)80	1	5	U	d
266.	Which command used to configure LCD for Display ON and Cursor Blinking? a)0E b)38 c)06 d)80	1	5	U	a
267.	Which command used to configure LCD for 5 X 7 matrix? a)01 b)38 c)06 d)80	1	5	U	b
268.	Which command used to shift the display right? a)01 b)38 c)06 d)80	1	5	U	c
269.	Write a short note on ADC IC. (ADC0804/ADC0808)	2	5	U	
270.	Write a short note on DAC IC. (DAC0808)	2	5	U	
271.	Write a short note on H-Bridge circuit.	2	5	U	
272.	Write a short note on PWM.	2	5	U	
273.	Write a short note on busy flag checking.	2	5	U	
274.	List the steps involved in initializing the LCD.	2	5	U	
275.	List the steps involved in sending the data to LCD for display.	2	5	U	
276.	Define resolution and step size.	2	5	U	
277.	Calculate the conversion time of ADC0804, if R=10K ohm and C=150pF.	2	5	U	
278.	Calculate the Digital output value of 8-bit ADC, if Vin=2.5V and Vref=2.5V	2	5	U	
279.	State the purpose of analog and digital ground in ADC0804.	2	5	U	
280.	Write the steps to be followed for data conversion in ADC0804.	2	5	U	
281.	State the reason for going to R/2R ladder method instead of binary weighed in DAC.	2	5	U	
282.	Calculate the Iout for binary value 11110000 by assuming Iref=2mA.	2	5	U	
283.	Write ALP program to generate a stair-step ramp signal.	2	5	U	
284.	Calculate the output voltage for Sin30.	2	5	U	
285.	Write ALP program to generate a sine waveform.	2	5	U	
286.	Write ALP program to generate a triangular waveform.	2	5	U	

S. No	Question	Mark	CO	Level	Answer
287.	Write a short note on optoisolator.	2	5	U	
288.	State the advantages of optoisolator.	2	5	U	
289.	State the difference between weighted and R-2R ladder DAC.	2	5	U	
290.	Write steps involved in configuring Keypad.	2	5	U	
291.	With suitable diagram explain the keyboard interfacing with 8051 microcontroller.	15	5	U	
292.	With suitable diagram explain the LCD interfacing with 8051 microcontroller.	15	5	U	
293.	With suitable diagram explain the ADC interfacing with 8051 microcontroller.	15	5	U	
294.	With suitable diagram explain the sensor interfacing with 8051 microcontroller.	15	5	U	
295.	With suitable diagram explain the DAC interfacing with 8051 microcontroller.	15	5	U	
296.	With suitable diagram explain the DC motor interfacing with 8051 microcontroller.	15	5	U	