	Sample questions
	Each question carries 10 marks
	Instructions:
	Read the question carefully and write relevant answer only
	Form a broader outine in your mind before starting the answer
	Cover all the points in the answer as expected
	Draw diagram whereever necessary
	Flow chart should be with proper/ standard building blocks
	Comment each line of the code to justify its significance
	Answers in bullet points are recommended
	Unit 1
1	Draw the block diagram of C8051F340 and list the features of C8051F340.
2	Draw the block diagram of CIP51 and explain CIP51 architecture in detail.
3	Compare Microprocessor with Microcontroller and explain the role of Microcontroller in Embedded system.Distinguish between Harvard and Von Neumann architecture with diagram. What are the advantages of RISC and CISC processor architecture?
4	List the addressing modes in CIP51 with examples. Explain the instructions with syntax addressing mode and examples: i) MOVC ii) XCHD iii) DJNZ iv) MOVX v) SWAP vi) DA A
5	Explain memory organization of C8051F340 with neat diagram.
6	Write following assembly language programs with comments and algorithm. 1.Addition of n 8-bit numbers 2.Addition of 2 BCD numbers having 16 bit data size
7	Write following assembly language program with comments and algorithm. Expalin the various addressing modes used in it Find square of a number using DPTR
8	Write following assembly language programs with comments and algorithm. Explain the various rotate instruction that can be used to find if a the given hex number is positive or negative. Write the assembly language program for the same
9	What is maximum answer that is generated when you multiply two 8 bit numbers. Write assembly language program to multiply two 8 bit numbers and accomade this results properly.
10	Explain PSW (Program Status word) of C8051F340 with example. Explain instruction MUL, DIV, XOR and ,@DPTR
11	Draw & explain programming model of C8051F340. Why the C pogramming is used in C8051F340? Explain the data types used in Embeded C.
	Unit 2
12	Explain default conditions upon Reset and list different Reset sources of C8051F340. Also explain registers related to reset.
13	Explain different power management modes of C8051F340. It's SFRs in detail
14	List oscillator options and associated SFRs of C8051F340.
15	Explain function of priority crossbar decoder in C8051F340 and find the value to be loaded in XBR1 to enable cross bar decoder.Explain operation of crossbar taking specific example like UART or PWM.
16	Find the value to be loaded into Timer registers and write an embedded C program to generate the square wave of frequency 5 KHz, (Use Timer 0 in Mode 1 and consider system clock frequency =12MHz for delay generation). Modify the code for mode 2.

17	Explain the port structure and all registers of C8051F340 and find the value to be loaded in various registers for following configurations: A.P3 as digital Input port B.P2 as digital output port C.Skip P1.2 D.Port 4.5 as analog input
18	Write features of timer block and Explain function of following timer registers CKCON, TMOD, TH0, TL0, TCON.
19	Explain different modes of operation for timer 0 and Write an algorithm to flash 8 LEDs connected at port 2 after every 10μsec using timer in mode 1 and 2.
20	Write steps to turn on LCD for displaying 'School of ECE". Discuss initialization of all registers used in program and LCD commands used.
21	Draw interfacing diagram to connect switch, relay and buzzer to Port 1 of C8051F340 and write c code to turn on Relay and buzzer if Switch1 is pressed and turn off if Switch 2 is pressed.Explain all SFRs used for programming.
22	Explain SFRs related to ports and timer and hence write a code to flash LEDs connected at port 2 after every 10μsec using timer.
23	What are various sources of clock for C8051F340. How to select 12 MHz system clock.Explain use of OSCLCN , CLKSEL, OSCICN registers
24	What is an interrupt? Explain IE(Interrupt Enable) and IP (Interrupt Priority) registers of C8051F340
25	Explain with neat diagram how to interface 4×4 matrix keypad with C8051F340 and write algorithm to find any key being pressed.Discuss initialisation of all C8051F340 registers used in programming.
26	Write programming steps for generation of time delay using timer in Mode 1, explaining all registers involved in programming
27	What should be the count value loaded in Timer register in Mode 1 to generate a delay of 3msec using 12 MHz as system clock. Also write code for the same.
28	What should be the count value loaded in Timer register in Mode 2 to generate a delay of 20 sec using 12 MHz as system clock. Also write code for same,
29	Write programming steps for generation of time delay using timer in Mode 2, explaining all registers invoved in programming
30	What will be the delay generated by Timer in Mode 2 if the count value loaded in timer register is 73H (Use 12 MHz as system clock.). Also write code for same.
	Unit 3
31	Explain registers related with PCA0 block of C8051F340.Draw an interfacing diagram for DC motor control using PCA0 block of C8051F340.
32	Write an embedded C code for generating square wave with100KHz frequency and 75 percent duty cycle using PCA block
33	Explain how to interface the stepper motor with C8051F340 with a neat interface diagram. Write a code to run the motor in an anti-clockwise direction and clockwise using half step sequence. Explain the hex code to be made available at the port pins for the same
34	Explain with neat diagram how to interface 4×4 matrix keypad with C8051F340 and write algorithm to detect if any key is being pressed.Discuss initialisation of all C8051F340 registers used in programming.
35	Draw a neat interface diagram for programming ADC of C8051F340 to obtain digital values on LEDS connected at port1 and explain following registers of ADC0, REF0CN, AMX0P, AMX0N, ADC0CN, ADC0CF. Write suitable code to obtain 10 bit digital output.
36	Draw interfacing diagram and write Embedded C program to interface DAC-0808 with C8051F340 to generate Square Wave, triangular wave, Trapezoidal Wave, Sine Wave, sawtooth wave, Explain algorithm used and registers used in detail
37	Draw an interfacing diagram and write an embedded C program to interface DAC-0808 with C8051F340 to generate Sine waves with a step angle of 15 degree. (Note: Port 1 should be interfaced with DAC).

38	Draw interfacing diagram to interface 7segment multiplexed display common anode type with C8051F340.Write a code to display numbers from 0 to 9 on the display. Explain changes needed to convert display into common cathode type. Also explain C8051F340 registers required for programming.
39	What is role of power management unit in C8051F340?Explain power control register of C8051f340.What is the difference between idle mode and stop mode?
40	Calculate the analog voltage obtained at the output of DAC for digital input of (11100110) b and Vref = 5V and Vref=3.3V. Write program to generate sine wave using DAC.
41	Explain how to interface the stepper motor with C8051F340 with a neat interface diagram. Write a code to run the motor in an anti-clockwise direction and clockwise using full step sequence. Explain the hex code to be made available at the protpins for the same
42	Explain with neat diagram how to interface 4×4 matrix keypad with C8051F340 and write algorithm to detect key being pressed in the 2nd row.Discuss initialisation of all C8051F340 registers used in programming.
43	Explain following registers of ADC0, REF0CN, AMX0P, AMX0N, ADC0CN, ADC0CF. Suggest on the use of ports to obtain 10 bit digital output.
44	Explain in detail the working of 8 bit PWM mode of C8051F340
45	Draw and explain PCA 8 bit PWM Mode using block diagram
	Unit 4
46	Which port pins can be configured as TXD and RXD of UART0? Which registers and their associated bits within Digital peripheral block of C8051F340 are important for the same? Justify the hex value to be loaded in them.
47	List out any 3 standard Baud rates available for Serial Communication and calculate appropriate value to be loaded in T1H rgister for these baud rates. Explain simplex, full duplex, half duplex communication.
48	Which registers of C8051F340 are to be considered for setting the Baud rate for serial communication? Mention the bit wise names within each register, associated for the same.
49	What are the possible frequencies for Timer1 that can be set for 8 bit serial transmission with variable Baud rate ? What are necessary setting in the registers associated with System Clock setup
50	Explain the importance of Timer in C8051F340 serial communication? Explain the necessary registers associated for the same
51	Draw and explain Frame format with the timing diagram of 8-Bit UART.
52	Explain specific registers associated with the Start and End for the serial transmission and reception of a byte with C8051F340 ?
53	Explain the settings needed for the registers associated with System clock, Oscillator ciruit, Digital Cross bar, I/O peripherals to initiate 8 bit serail communication using UART
54	Draw the flow chart for serial charater transmission and reception using UART0 with 9600 baud rate.
55	With suitable diagram explain the Baud Rate Logic for TX clock and RX clock.Explain registers SBUF0 ans SCON0.
56	Explain following SFRs of SPI0 in detail.SPI0DAT,SPI0CKR, SPI0CN, SPI0CFG
57	Explain SPI0 master mode of operation with neat diagram and registers associated with it.
58	Explain SPI0 slave mode of operation in 3 wire communication.
59	Draw an interfacing diagram and write an Embedded C program to transmit and receive the string "Examination" serially at a baud rate of 57600. Show detailed calculations.
60	Explain the significance of 4 wires MOSI, MISO, SCK, and NSS of C8051F340 SPI Protocol.Also explain SPI modes with CPOL and CPHA.
61	Compare any 4 microcontrollers on the basis of manufacturer, serial interfaces available, ADC, DAC, clock frquency, memory, and applications
62	Explain Serial & Parallel communication in detail. Compare synchronous & asynchronous communication.
63	Explain Rs-232 and RS-485 Protocol in detail. Cpmpare SPI0 and UART0 of C8051F340.
64	Discuss in detail Case study on data acquisition system using microcontroller.
65	