E

06000EE309122001

Pages: 2

Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fifth Semester B.Tech Degree (S,FE) Examination January 2022 (2015 Scheme)

Course Code: EE309

Course Name: MICROPROCESSOR AND EMBEDDED SYSTEMS

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks. Marks

1		Explain the operation of following instructions (i)STA 2500 (ii)DAD B (iii)ADD M (iv)RET	(5)
2		Sketch the timing diagram of MOV B,C	(5)
3		Explain Software and Hardware interrupts in 8085 Microprocessor with example.	(5)
4		Compare Microprocessor and Microcontroller.	(5)
5		Discuss the 8-bit PSW register in 8051	(5)
6		Explain TMOD register of 8051.	(5)
7		Explain the Data types and Directives of 8051 Microcontroller	(5)
8		Write an ALP in 8051 to generate a square wave on bit 0 of Port 1 with on and off period of same length.	(5)

PART B

Answer any two full questions, each carries 10 marks.

9		Explain the architecture of 8085 microprocessor with the help of a neat functional block diagram	(10)
10	a)	Explain different addressing modes in 8085 with examples	(6)
	b)	Explain Fetch cycle & Execute cycle in 8085.	(4)
11	a)	Analyse the content of stack pointer after the execution of PUSH and POP instructions with an example	(5)
	b)	Find the count to be loaded in a register pair to obtain a delay of 2500 μs. Assume external quartz crystal oscillator clock frequency as 6 MHz	(5)

PART C

Answer any two full questions, each carries 10 marks.

12 a) List the field of applications for an embedded system (4)

b) In a microprocessor 8085 based system requires one 2K x 8 EPROM and 1K x 8 RAM. Write the address range of each memory chip and also draw the interface diagram. Use 3 to 8 decoder (6)

13 a) Draw the control word format for the I/O mode of 8255 (6)

b) Make control word when the ports of Intel 8255 are defined as follows: (4)

(i) Port A as an input port (ii) Mode of the Port A-Mode 0 (iii)Port B as an output port (iv) Mode of the port B- Mode 0 (v) Port C_{upper} as an input port (vi) Port C_{lower} as an output port

14 With a neat diagram explain water fall model. What are its disadvantages? (10)

PART D

Answer any two full questions, each carries 10 marks.

15 Assume that external crystal frequency (XTAL) =11.0592 MHz. What value do we need to load into the timer's register if we want to have a time delay of 5ms? Show the ALP for Timer 0 to create a pulse width of 5ms on P2.3 (Assume Mode 1 operation and software control for Timer 0) (10)

16 Explain with neat diagram the Register organisation and SFR in 8051. (10)

17 a) Explain the operation of following instructions (4)

(i)SWAP A (ii)CPL C (iii)MOV R_n, $\#05_H$ (iv) RL A

b) Draw the TMOD register of 8051. Indicate which mode and which timer are selected for each of the following i) MOV TMOD, #10H ii) MOV TMOD, #02H (6)

****