22ELP209N / 22ELP209

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2024
(Second Semester)

Branch - **APPLIED ELECTRONICS**

ADVANCED MICRO CONTROLLERS

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	In MSP430, the size of the status register is_____. a) 1 byte b) 2 bytes c) 1 bit d) 2 bit	K1	CO1
	2	Which of the following bit/s of the status register that allows the microcontroller to operate in its low power mode? a) Z b) Reserved c) CPU off d) N	K2	CO2
2	3	Which of the following is the analog to digital converter that is present in the MSP430 based processors? a) comparator b) successive approximation ADC c) sigma delta ADC d) all of the mentioned	K1	CO1
	4	Higher resolution along with the slow speed is given by which ADC module? a) comparator b) successive approximation ADC c) sigma delta ADC d) all of the mentioned	K2	CO1
3	5	Pre increment addressing is available in MSP430. a) true b) false c) cant be said d) depends on the conditions	K1	CO3
	6	Which out of the following is a correct emulated instruction? a) ADC(.B) dst b) ADD(.B) src,dst c) ADDC(.B) src,dst d) AND(.B) src,dst	K2	CO2
4	7	Which of the following is true about the FRFQx bits of the BTCTL register? a) these bits are used for clock input b) these bits are used for setting a particular frequency f_{LCD} c) these bits start the timer d) these bits stop the timer	K1	CO2
	8	Timer1 is responsible for _____ a) providing a clock to the LCD module b) cause an interrupt c) a pulse for the RTC d) all of the mentioned	K2	CO2

Cont...

5	9	Asynchronous serial communication usually requires two wires for each direction plus a common ground. a) true b) false c) cant be said d) depends on the conditions	K1	CO1
	10	In an asynchronous mode of transmission, usually the data is sent along with the a) the start bit b) the stop bit c) the start & stopbit d) none of the mentioned	K2	CO1

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain about Memory Structure.	K4	CO2
	(OR)			
	11.b.	Discuss about the RTC.		
2	12.a.	Describe the function Digital I/O.	K4	CO1
	(OR)			
	12.b.	State the function about DAC.		
3	13.a.	Explain the Data Control.	K5	CO3
	(OR)			
	13.b.	Draw and explain about interrupt control with neat sketch.		
4	14.a.	Classify the function of Register Map.	K6	CO3
	(OR)			
	14.b.	Discuss the function about Watchdog timer.		
5	15.a.	Explain the advantages of Function Description.	K4	CO5
	(OR)			
	15.b.	Justify the term SPI Registers.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Discuss the operations of Timer A & B.	K5	CO2
2	17	Analyze the Asynchronous Serial Communication with neat sketch.	K4	CO1
3	18	Determine the details about GPIO and its functions.	K6	CO5
4	19	Develop the Peripheral Library APIs, for ADC.	K4	CO3
5	20	What is UART ? Explain with each block diagram.	K5	CO1

Z-Z-Z END