PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
MSc DEGREE EXAMINATION MAY 2025
(Second Semester)

Branch – **APPLIED ELECTRONICS**

ADVANCED MICROCONTROLLERS

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)
Answer ALL questions
ALL questions carry EQUAL marks

(10 × 1 = 10)

Question No.	Question	K Level	CO
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	What is actually done to improve the efficiency of a RISC processor? a) instructions are reduced b) they have two or more processors inbuilt connected between c) they have many instructions that are interrelated to each other d) they have one or more registers hard wired to the commonly used values.	K1	CO1
3	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	The successive approximation converters have a resolution of _____ a) 8-10 bits b) 10-12 bits c) 12-16 bits d) 16-32 bits	K2	CO2
5	Which of the following should a microcontroller at-least should consist of? a) CPU, ROM, I/O ports, and timers b) RAM, ROM, I/O ports, and timers c) CPU, RAM, I/O ports, and timers d) CPU, RAM, ROM, I/O ports, and timers	K1	CO3
6	Which of the following architecture is followed by general-purpose microprocessors? a) Von Neumann architecture b) Harvard architecture c) None of the mentioned d) All of the mentioned	K1	CO3
7	Which of the following file extension that is loaded in a microcontroller for executing any instruction? a) .c b) .txt c) .hex d) .doc	K2	CO4
8	Which of the following bit/s of the status register that allows the microcontroller to operate in its low power mode? a) CPU off b) Z c) N d) Reserved	K2	CO4
9	Which company developed 16450? a) Philips b) Intel c) National semiconductor d) IBM	K1	CO5
10	How is data detected in a UART? a) counter b) timer c) clock d) first bit	K2	CO5

SECTION - B (35 Marks)
Answer ALL questions
ALL questions carry EQUAL Marks   (5 × 7 = 35)

Question No.	Question	K Level	CO
11.a.	Explain the memory structure of MSP430 Microcontroller.	K3	CO1
	(OR)		
11.b.	State the functions of timer A and B.		
12.a.	Show the structure of 12C bus in MSP430 Microcontroller.	K3	CO2
	(OR)		
12.b.	Explain the function of UART in detail.		
13.a.	Illustrate the functional over view of 32 bit microcontroller.	K4	CO3
	(OR)		
13.b.	Analyze the GIPO register map in detail.		
14.a.	Explain the functional description of timer.	K4	CO4
	(OR)		
14.b.	Write a detailed note on watchdog timer.		
15.a.	Discuss about UART block diagram and write its demerits .	K5	CO5
	(OR)		
15.b.	Explain the initialization and configuration procedure of 12C.		

SECTION -C (30 Marks)
Answer ANY THREE questions
ALL questions carry EQUAL Marks   (3 × 10 = 30)

Question No.	Question	K Level	CO
16	Explain the functional block diagram of MSP430.	K4	CO1
17	Enumerate about ADC in MSP430 with neat sketch and write its applications.	K4	CO2
18	Explain the CC32xx interrupt control methods in detail.	K4	CO3
19	Explain the API's for ADC with examples.	K5	CO4
20	Explain the initialization and configuration of SPI.	K5	CO5

Z-Z-Z   END