

Total No. of Questions :6]

SEAT No. :

**P219**

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**Oct./ BE/ Insem. - 535**

**B.E. (Electrical)**

**FUNDAMENTALS OF MICROCONTROLLER MSP430 AND  
ITS APPLICATIONS**

**(2015 Course) (Semester - I) (403143A) (Open Elective-I)**

*Time : 1 Hour]*

*[Max. Marks :30*

*Instructions to the candidates:*

- 1) *Answer Q1 or Q2, Q3 or Q4, Q5 or Q6.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right side indicate full marks.*
- 4) *Assume suitable data, if necessary.*

**Q1) a)** Explain with a neat diagram Functional Block diagram of a MSP430 microcontroller. **[5]**

b) Write a short note on MSP430G2 Launchpad. **[5]**

**OR**

**Q2) a)** With a neat diagram explain the internal RAM organization of MSP430 microcontroller. **[5]**

b) Explain the on chip peripheral “Hardware multiplier” **[5]**

**Q3) a)** With an example explain any three addressing modes of MSP430 microcontroller. **[5]**

b) write a program to switch on led's connected to port pin P2.3 and P2.4 LED are connected in common cathode configuration. **[5]**

**OR**

**P.T.O.**

**Q4) a)** write a short note on interrupt structure of MSP430. **[5]**

b) Explain the following registers associated with the port P1IN, P1OUT and P1DIR. **[5]**

**Q5) a)** With block diagram explain the basic timer 1 module of MSP430 microcontroller. **[5]**

b) Explain the measurement of time period of a signal using Capture mode in MSP430 microcontroller. **[5]**

OR

**Q6) a)** Explain use and working of the Real Time Clock with MSP430 **[5]**

b) Write a program to generate center aligned 1 kHz PWM using timer-counter combination. **[5]**