R16

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, December - 2019
MICROPROCESSORS AND MICROCONTROLLERS
(Electronics and Communication Engineering)

Time: 3 hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B
consists of 5 Units. Answer any one full question from each unit. Each question carries
10 marks and may have a, b, c as sub questions.

PART - A
(25 Marks)

1.a)	What is the need of memory segmentation?	[2]
b)	Give the interrupt vector table.	[3]
c)	When sign flag and zero flag will set?	[2]
d)	Draw the PSW in 8051 microcontroller.	[3]
e)	What is the need of ADC and DAC's in 8051?	[2]
f)	Draw the hardware diagram to acquire data using 8-bit ADC?	[3]
g)	Name any two branch instructions of ARM processor.	[2]
h)	Draw the vector table.	[3]
i)	What are the major address ranges in CORTEX processor?	[2]
j)	Name the specifications of OMAP1.	[3]

PART - B
(50 Marks)

2.a) List the addressing modes of 8086 and give example to each one.
   b) Explain the function of the following instructions: [5+5]

   i) AAM   ii) IDIV   iii) INT0
   iv) JCXZ   v) LEA

OR

3.a) Describe the steps that 8086 will take when it responds to an interrupt.
   b) What is meant by nested interrupt? Explain with an example.   [5+5]

4.a) Explain how data exchange takes place in 8051 microcontroller.
   b) Two 2-digit BCD numbers are at consecutive memory addresses, Q+3 and Q+4.
   Compute the difference of the two numbers and store the result at location Y.   [5+5]

OR

5.a) Explain PUSH and POP instructions with examples.
   b) Binary numbers are stored at consecutive data memory addresses starting at Q.
   Rearrange the numbers in descending order.   [5+5]

6.a) Explain DAC interface to 8051 microcontroller.
b) How do the direction of d.c. motor is controlled using microcontroller? [6+4]

OR

7.a) Write a program that finds frequency by measuring the time for m cycles of the unknown periodic wave.
b) Write a look up table program that will allow the F key of a 2-of-8 coded keypad to be used as a shift key. [5+5]

8.a) Explain about any 16-bit microcontrollers.
b) Write about ARM/THUMB instruction set and development tools. [5+5]

OR

9.a) Discuss the I/O ports and interrupt structure of 16-bit microcontrollers.
b) Discuss the programmable timers and high speed outputs and inputs of 16-bit microcontrollers. [5+5]

10. Briefly describe the features of the Cortex M3 based microcontrollers memory organization. [10]

OR

11. What are the different types of OMAP processors? Explain their features in brief. [10]

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