D

APJ Abdul Kalam Technological University

Ernakulam II Cluster

First Semester M.Tech Degree Examination December 2017

Time: 3 hrs. **05EC 6007–EMBEDDED PROCESSORS** Max. Marks: 60

I. **12 Marks**

a) Draw the block diagram of PLL based clock module in TMS320F28335 DSP processor and list it's features. (6 Marks)

b) What are the features of Enhanced PWM module in TMS320F28335 DSP processor? (6 Marks)

II **12 Marks**

a) How system stability is verified using Laplace transform and Z transform? (4 Marks)

b) Design an FIR digital filter to approximate an ideal low pass filter with cut off frequency of 0.2π rad/sample. The length of the impulse response should be 7.Use rectangular window. (8 Marks)

III **18 Marks**

a) Draw the structure of CPSR register in ARM and list the functions of each bit. (4 Marks)

b) Describe ARM core data flow model. (7Marks)

c) List the features of general purpose DMA controller in ARM LPC 1769. (7 Marks)

OR

IV **18 Marks**

a) What are the different processor modes available in ARM? (8 Marks)

b) Draw and explain LPC 1769 clock generation block diagram. (10 Marks)

V **18 Marks**

a) With neat sketch explain standard ARM C program address space model. (7 Marks)

b) With neat diagram explain hardware system prototyping tool. (7 Marks)

c) Describe the components of ARMulator. (4 Marks)

OR

VI **18 Marks**

a) Differentiate AHB, ASB and APB in advanced microcontroller bus architecture. (8 Marks)

b) Differentiate between PCB testing, VLSI testing and macrocell testing. (10 Marks)