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**Question Paper Code: 53T02**

M.E. DEGREE EXAMINATION, NOV 2019

Third Semester

Power Electronics and Drives

15PPE302 – DIGITAL CONTROLLERS IN POWER ELECTRONICS APPLICATION

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20= 80Marks)

1. (a) Explain the indirect addressing mode used to access memory in TMS320LF2407. CO1- U (20)

Or

- (b) (i) Explain about the components of C2xx DSP core. CO1- U (10)
- (ii) Discuss briefly about the physical memory available in TMS320LF2407 DSP. CO1- U (10)
2. (a) Write in detail about the general purpose I/O control registers of TMS320LF2407 DSP processor. CO2-U (20)

Or

- (b) Write in detail about the general purpose I/O control registers of TMS320LF2407 DSP processor. CO2-U (20)
3. (a) Discuss the following CO3-U (10)
- (i) Features of capture units.
- (ii) Quadrature enclosed pulse circuit. CO3-U (10)

Or

- (b) What is GP timer? and explain in detail with neat sketch. CO3-U (20)

4. (a) (i) Write short notes on Spartan 3E. CO4 -U (10)  
(ii) Explain the details about Xilinx 4000 series CO4 -U (10)
- Or
- (b) Explain the following CO4 -U (10)  
(i) IOB in FPGA  
(ii) CPLD vs FPGA CO4 -U (10)
5. (a) What is the necessity of digital control of controlled rectifier? CO5-U (20)  
Give VHDL codes for converter fed DC drive.
- Or
- (b) Design a VHDL program for a fully controlled rectifier and CO5-Ana (20)  
formulate the digital firing control logic to get a desired output  
DC voltage.