GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER–VII EXAMINATION – WINTER 2025

Subject Code:3172416   **Date:20-11-2025**
Subject Name:Digital Signal Controllers
Time:10:30 AM TO 01:00 PM   **Total Marks:70**

Instructions:
1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

Q.1	**(a)**	List the advantages & dis-advantages of Harvard & Von-Neuman architecture of Processor.	**03**
	(b)	What is CCS? Explain basic features available in CCS.	**04**
	(c)	What do you understand by Sampling? Describe the Frequency Domain Sampling of a Signal in detail.	**07**
Q.2	**(a)**	Explain difference between digital signal controllers and digital signal Processors.	**03**
	(b)	Enlist subfamilies of DSC.	**04**
	(c)	Compare PICOLO and DELFINO Microcontrollers for Various Aspects in Tabular form.	**07**

OR

	(c)	Discuss Functionality of any one C2000 Real Time Microcontroller.	**07**
Q.3	**(a)**	Discuss in brief utility of Break points and Probe points in Code Composer Studio(CCS).	**03**
	(b)	Discuss Development Tools used in CCS and also explain Project Environment of CCS.	**04**
	(c)	Justify the statement "Digital Signal Processing is must for Power Electronics Systems".	**07**

OR

Q.3	**(a)**	State name of the IDE provided by TI for C2000 family of Microcontrollers.	**03**
	(b)	What are different facilities in IDE in Q3(a) above?	**04**
	(c)	Explain how Watch window, Graph window can be useful in debugging.	**07**
Q.4	**(a)**	State Various ON Chip Peripherals available in TMS320F283xx Processors.	**03**
	(b)	Explain GPIO of TMS320F28335.	**04**
	(c)	Write a Suitable Program for Timer Interrupt of Controller.	**07**

OR

Q.4	**(a)**	Explain Memory Map of TMS320F28335.	**03**
	(b)	Explain ADC Module of TMS320F28335 in details.	**04**
	(c)	Explain Software Development Tool flow in details.	**07**
Q.5	**(a)**	Explain the following terms: - Linker.	**03**
	(b)	Explain Macros and its usefulness in Program Development.	**04**
	(c)	With Neat Waveform explain how Noise Pulses can be eliminated from getting read at GPIO pin.	**07**

OR

Q.5 **(a)** Discuss utility of Object Modules in Software Development Tool. **03**

(b) Write a Suitable Program for PWM Generation for a Controller. **04**

(c) Discuss CPU Timers of DSC 2833X Series Controller in detail. **07**

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