Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII EXAMINATION – SUMMER 2025

Subject Code:3172416 Date:16-05-2025

Subject Name:Digital Signal Controllers

Time:02:30 PM TO 05:00 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)**	Enlist subfamilies of DSC.	**03**
	(b)	Explain basic features available in code composer studio(CCS).	**04**
	(c)	Discuss usage of DSP & DSC in Power electronics engineering.	**07**
Q.2	**(a)**	Discuss in brief main features of C2000 real time microcontroller.	**03**
	(b)	What do you understand by Processing capacity w.r.t. C2000 real time microcontroller? Draw block diagram/architecture of a simple DSP.	**04**
	(c)	Explain sampling & reconstruction of signal in frequency domain.	**07**
		OR	
	(c)	Compare PICOLO and DELFINO Microcontrollers for various aspects in tabular form.	**07**
Q.3	**(a)**	Explain data file format in code composer studio (CCS).	**03**
	(b)	Discuss utility of Multi processing in code composer studio.	**04**
	(c)	Explain the code composer studio as Integrated development Environment.	**07**
		OR	
Q.3	**(a)**	What is MAC operation? Explain its usefulness.	**03**
	(b)	Discuss utility of Break points and Probe points in code composer studio(CCS).	**04**
	(c)	Discuss w.r.t. CCS (i) Watch window (ii) Project environment.	**07**
Q.4	**(a)**	Define Interrupt. Explain in brief 32 bit timers of TMS320F28335.	**03**
	(b)	Explain Memory map of TMS320F28335.	**04**
	(c)	Enlist various peripherals for DSC 2833X series.	**07**
		OR	
Q.4	**(a)**	Explain PIE block diagram.	**03**
	(b)	Explain functional block diagram of TMS320F28335 controller.	**04**
	(c)	With neat waveform explain how noise pulses can be eliminated from getting read at GPIO pin.	**07**
Q.5	**(a)**	Draw block diagram of ADC module in TI28335.	**03**
	(b)	Discuss utility of Object modules in software development tool.	**04**
	(c)	Write a suitable program for PWM generation for a controller.	**07**
		OR	
Q.5	**(a)**	Explain in brief Flash Memory.	**03**
	(b)	Write a suitable program for timer interrupt for a controller.	**04**
	(c)	Define and explain the following terms:- (i) Assembler (ii) Macros (iii) Linker	**07**

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