Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC– SEMESTER III– • EXAMINATION –WINTER- 2016

Subject Code: X31101 Date:30/12/2016

Subject Name: Advance Electronics

Time:10:30 AM to 1:00 PM Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Draw and explain Hybrid- π model for CE transistor configuration.	**07**
	(b)	For CE short circuit current gain g_m= 50 mA/V, $r_{b'e}$= 1 KΩ, C_e= 1 pF and C_c = 0.2 pF, determine the values of f_β and f_T.	**07**
Q.2	**(a)**	Draw RC coupled Amplifier using Common emitter configuration. Obtain equation for lower 3-db frequency for the same circuit.	**07**
	(b)	Three cascaded stage have an overall upper 3 dB frequency of 16 KHz and lower 3 dB frequency of 25 Hz. Find the value of F_L and F_H of each stage. Assume that all the stage are identical. Also calculate bandwidth of each stage.	**07**
		OR	
	(b)	What is Oscillator? Which condition should be full filled for oscillation. Explain that condition also.	**07**
Q.3	**(a)**	Draw and explain working of Hartley oscillator.	**07**
	(b)	Draw and explain working of Wein bridge oscillator.	**07**
		OR	
Q.3	**(a)**	Define Feedback. List and explain types of feedback. List advantages and disadvantages of them.	**07**
	(b)	Explain Voltage series feedback topology with suitable example.	**07**
Q.4	**(a)**	Define op amp. Draw and explain block diagram of op amp. List characteristics for ideal op amp.	**07**
	(b)	Explain significance of pole zero compensation for op amp with suitable diagram.	**07**
		OR	
Q.4	**(a)**	Define following terms with reference to opamp 1) Output offset voltage 2) CMRR 3) Slew rate 4) Input bias current 5) Differential Amplifier 6) PSRR 7) Thermal drift	**07**
	(b)	Give comparisons between different logic families.	**07**
Q.5	**(a)**	Explain TTL with suitable example.	**07**
	(b)	Explain R-2R ladder type DAC.	**07**
		OR	
Q.5	**(a)**	Explain dual slope A/D converter.	**07**
	(b)	Explain Successive approximation ADC.	**07**

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