Seat No.:	Enrolment No
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Subject Name: Radar & Navigational Aids (Department Elective - II)

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VIII (OLD) - EXAMINATION – SUMMER 2017 Subject Code:181103 Date:04/05/2017

Time: 10:30 AM to 01:00 PM Total Marks Instructions:		70	
		Attempt all questions.Make suitable assumptions wherever necessary.	
Q.1	(a) (b)	Define the following: (Any Seven) 1. MTI radar 2. Pulse RADAR 3. TACAN 4. Maximum unambiguous range 5. Four methods of navigation 6. Tellurometer 7. Multiple Time around Echoes 8. plumbing loss Define radar clutter & prove that clutter power is inversely proportional to the	07
Q.2	(a)	square of the range. Explain with a neat diagram about sequential lobing & Conical scanning.	07
Q.2	(a) (b)	Explain Multi Frequency modulated CW radar. OR	07
	(b)	For air surveillance radar, how tracking is done (TWS)?	07
Q.3	(a) (b)	What is the Doppler effect? Compare pulse Doppler radar with CW radar. Enlist & briefly explain various errors in direction finding. OR	07 07
Q.3	(a) (b)	Explain the range & accuracy of DECCA navigation system. RADAR is designed for operation at 10 GHz with an antenna of diameter 2 m; calculate the peak pulse power required to have a maximum range of 1000 km with a target cross-section area20 m ² .	07 07
Q.4	(a) (b)	Explain Airborne Doppler navigation. Explain any two limitation of MTI Radar. MTI radar is operating at 10 GHz with PRF of 1000Hz. Calculate two lowest blind speeds. OR	07 07
Q.4	(a) (b)	Explain airborne Automatic direction finder through a block diagram. Define electronic navigation also explain the main types of navigational aids.	07 07
Q.5	(a)	Describe the principle of VOR. Explain VOR Receiving equipment use for reference phase & bearing measurement.	07
	(b)	Explain the principle of working of LORAN A. Discuss the sequence of transmission and reception of pulses. How absolute delay τ is measured? OR	07
Q.5	(a)	What are the drawbacks of ILS? What is glide Path in ILS? What are the site	07
	(b)	effects in the ILS? Discuss various antenna patterns of ILS Localizer. Explain principle of NAVSTAR GPS receiver.	07
