Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VIII EXAMINATION - SUMMER 2016

Subject Code:181103		et Code:181103 Date:16/05/2016	Date:16/05/2016	
\mathbf{T}	ime:	et Name:Radar & Navigational Aids (Department Elective - II) 10:30 AM to 01:00 PM Total Marks: 70 ions: 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks.	0	
Q.1	(a) (b)	How FMCW radar overcomes the shortcomings of Doppler CW radar? Explain the principle and operation of FM-CW radar in brief. Define the following: (i) Maximum Unambiguous range (ii) Pulse repetition frequency (iii) Collapsing Loss.(iv) Average transmitter Power (v) Blind Speed (vi) Doppler Shift (vii) clutter	07 07	
Q.2	(a) (b)	Draw and Explain block diagram of a conventional pulse radar with a superheterodyne receiver. What is the use of delay line canceler? Obtain the frequency response of a single and double delay line canceler. OR Draw the block diagram of MTI radar with Power oscillator transmitter and explain	07 07 07	
Q.3	(a) (b)	its operation? What is the need for Coho and Stalo? List the four methods of navigation. Describe any one in detail. What is DME? Explain the operation of DME inside the aircraft.	07 07	
Q.3	(a) (b)	OR Explain working of modern GPS system. Write short note on Instrument landing system.	07 07	
Q.4	(a) (b)	Draw and explain block diagram of conical-scan tracking radar. List the three different radar range equations. Discuss their significance and Justify "Maximum range of the radar is inversely proportional to the square-root of wavelength"	07 07	
Q.4	(a) (b)	OR What is the reason for very high scanning speed of Phased array antenna compared to parabolic reflector antenna? How the steering mechanism works in linear phase array? Draw and explain block diagram of amplitude-comparison monopulse radar with one angular co-ordinate.	07 07	
Q.5	(a) (b)	Explain working of the LORAN-A system. What do you mean by VOR? Explain VOR receiving equipment.	07 07	
Q.5	(a) (b)	OR Briefly describe the DECCA receiver with neat sketch. Explain the components of Doppler navigation system.	07 07	
