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## **GUJARAT TECHNOLOGICAL UNIVERSITY**

## **BE - SEMESTER-VII • EXAMINATION - SUMMER • 2014**

Subject Code: 170105 Date: 31-05-2014 **Subject Name: Advance Avionics** Time: 02.30 pm - 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. Explain fault tolerance methodology. Discuss its importance in Avionics System 07 Q.1 (a) Design. (b) What do you understand by Reliability? What are the various factors governing 07 Reliability at design stage of Avionics Systems? Explain both methods of packaging the avionics namely ARINC and DOD-STD style. 07 Q.2(a) What is Fault Tree Analysis? Explain its procedure with suitable line diagrams. 07 **(b)** OR (b) Describe the working of a conventional CRT. Briefly mention the other types of **07** displays presently used and their advantages over conventional CRT displays. (a) Write Short Notes on (any two): **07** Q.3 (1) Night Vision Goggles (2) TCAS (3) Ground proximity (4)Warning System (b) Discuss the need for keeping the Avionics systems cool. Explain the methods of cooling 07 procedure. OR Explain in detail Ada-95. Also discuss Failure Modes and Effect Analysis. **07** Q.3(a) Discuss the importance of decision on maintenance by Who, When and Where. 07 What is collision avoidance system in aircraft? Briefly explain its working principle. **07 Q.4** (a) What do you understand by Human Factor Engineering? How does it affect aviation **07 (b)** system design? OR Explain Electronic Warfare. Describe few ECM practices and how they are countered Q.4 (a) by adequate ECCM methods. (b) With the help of a line diagram explain DO-178 Software Development and Validation 07 Procedure. Discuss the relation between Aircraft Mission and choice of Avionics Systems with 0.5 (a) 07 suitable examples. (b) What is certification in Aviation operating procedure? Mention various certification 07 authorities existing worldwide with their jurisdiction. OR (a) Describe the purpose and working principle of Head Mounted Display with the help of 07 Q.5 suitable diagram. Mention the importance of Weather Radar in an aircraft. Also explain its working 07 principle. Why extremely high frequencies are chosen for its operation?

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