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**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER– III (New) EXAMINATION – WINTER 2019**

**Subject Code: 3130108**

**Date: 28/11/2019**

**Subject Name: Fundamentals of Aeronautical Engineering**

**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.

		Marks
<b>Q.1</b>	(a) Explain function behind trim tabs.	<b>03</b>
	(b) What is drag divergence mach number? Explain with the help of Diagram.	<b>04</b>
	(c) Explain in details three axis and four forces of an aircraft.	<b>07</b>
<b>Q.2</b>	(a) What is airfoil? Explain different application of it.	<b>03</b>
	(b) Explain function of Integrated control surfaces-Flaperon, Ruddervator, Elevons, Tailerons.	<b>04</b>
	(c) With the neat sketch, explain how lift is generated by wings of aircraft?	<b>07</b>
<b>OR</b>		
	(c) Explain Principal of generation of lift for cambered airfoil.	<b>07</b>
<b>Q.3</b>	(a) Draw a neat sketch of wing structure with nomenclature.	<b>03</b>
	(b) Explain the reason of pressurizing of fuselage.	<b>04</b>
	(c) Explain application and Function of VHF Omni-directional range.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) Explain the application of ADF.	<b>03</b>
	(b) Write a difference between bulkhead and former with neat sketch.	<b>04</b>
	(c) Draw and explain construction of Former, Skin, Longerons, Stiffener/Stringers, Bulkheads and Ribs.	<b>07</b>
<b>Q.4</b>	(a) Explain Function of Spoilers.	<b>03</b>
	(b) Explain Classification of Propulsion system with the flow diagram.	<b>04</b>
	(c) Explain turbojet Engine with neat sketch.	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) Explain the application of DME.	<b>03</b>
	(b) What is Pressure co-efficient? Explain Briefly.	<b>04</b>
	(c) Explain turbofan engine with neat sketch.	<b>07</b>
<b>Q.5</b>	(a) Write difference between turbo-engines and piston engines.	<b>03</b>
	(b) What are the difference between VOR and VORTAC.	<b>04</b>
	(c) Explain Principal types of aircraft construction methods with the help of neat sketch.	<b>07</b>
<b>OR</b>		
<b>Q.5</b>	(a) Draw Junction of longeron, truss and gusset.	<b>03</b>
	(b) What are the difference between ILS and MLS.	<b>04</b>
	(c) Explain the function of Glide scope, Localizer and Marker beacon. How it will be useful for landing of aircraft?	<b>07</b>

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