

Hoy Time: 3 hrs.

Eighth Semester B.E. Degree Examination, Aug./Sept. 2020 Flight Vehicle Design

Max. Marks:100

Note: Answer FIVE full questions, selecting atleast TWO questions from each part.

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; blank pages. = 50, will be treated as malpractic			PART – A	
ma				
d as	1	a.	Draw a flow chart for the aircraft design process.	(10 Marks)
eate		b.	Explain the phases of aircraft design.	(10 Marks)
es. be tr	_			
pag vill 1	2	a.	Explain the take-off weight build up and the empty weight estimation for a r	new aircraft
ank 50, v		1.	design.	(10 Marks)
g pl		b.	Explain conic lofting and conic layout.	(05 Marks)
inin 12+8		c.	Explain conic layout using conic shape parameter.	(05 Marks)
ems.	3	a.	Explain the selection criteria for the followings:	
the r	3	a.	i) Aerofoil shape	
on writ			ii) Wing Taper ratio	
ines			iii) Wing leading edge sweep angle.	(10 Marks)
oss l uati		b.	Draw a typical V-n diagram and gust envelope.	(10 Marks)
or eq			Co. Co.	
oy pu	4	a.	Draw a typical spread sheet for wing design.	(10 Marks)
diag or ar		b.	Draw a spread sheet for fuselage design.	(10 Marks)
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ily d eva			DADE D	
lsor al to			PART – B	
npu	5	a.	Explain turbojet engine sizing and installed thrust correction.	(10 Marks)
, col		b.	Explain propeller design for cruise.	(10 Marks)
vers				
ansv	6		Explain the followings:	
our		a.	Castoring – wheel geometry	
lg y		b.	Landing gear arrangements	
aling		c. d.	Types of shock – absorbers Solid – spring gear sizing.	(20 M1)
omp		u.	Solid – spring gear sizing.	(20 Marks)
On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Any revealing of identification, appeal to evaluator and /or equations written eg, $42+8=50$ , will be	7	a.	Explain the flight control linkage systems with figure.	(10 Marks)
	,	b.	Explain propeller – engine integration.	(10 Marks)
ite :			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	(10111111)
portant Note : 1. 2.	8	a.	Draw a simplified bleed air system with associated aircraft systems.	(10 Marks)
ortar		b.	What is multiple redundancy actuation and the need for trim.	(10 Marks)
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