Sanjay Ghodawat University, Kolhapur

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

2019-20
EXM/P/09/01

Year and Program: 2019-20 and SY B.Tech.
Course Code: AET203

School of Technology

Department of Aeronautical Engineering
Semester – III

Course Title: Elements of Aeronautical Engineering
End Semester Examination (ESE)

Day and Date: Wednesday 20/11/19

Time: 3hours **Max Marks: 100**
10.30 am to 1.30 pm

Instructions:
1) Use of Programmable calculators is not allowed.
2) Assume suitable data wherever necessary.
3) Draw neat sketch wherever necessary.

		Marks	Bloom's Level	CO
Q.1	**Solve the following**			
a)	Describe the different parts of airplane with neat sketch.	07	L_2	CO1
	OR			
a)	Briefly explain the classification of aircraft.	07	L_2	CO1
b)	Apply Bernoulli's principle in lift generation and explain lift curve characteristics for symmetrical airfoil.	08	L_3	CO2
	OR			
b)	Write the forces acting on an aircraft with neat sketch and also explain the generation of lift on an aircraft.	08	L_2	CO2
Q.2	**Solve the following**			
a)	Explain the basic components of turbofan engine and give function of each in detail.	07	L_2	CO5
	OR			
a)	Differentiate between ramjet engine and scramjet engine with neat sketch.	07	L_2	CO5
b)	Analyze the different structural loads acting on the aircraft during flying.	08	L_4	CO3
	OR			
b)	Explain with neat sketch the monocoque structure of fuselage of an	08	L_2	CO3

aircraft.

Q.3	**Solve any Two**				
	a)	Describe the current market opportunities in the field of aviation.	08	L_2	CO1
	b)	Explain the pressure distribution over an symmetrical aerofoil.	08	L_2	CO2
	c)	Derive the thrust equation for jet engine.	08	L_2	CO3
	d)	Write about the structural components of wing with a neat sketch.	08	L_2	CO4
Q.4	**Solve any Two**				
	a)	Explain the advantages of composite material used in aircraft.	09	L_2	CO3
	b)	Brief about the titanium and nickel alloys.	09	L_2	CO3
	c)	Describe the various aluminum alloys used in aircraft and their applications.	09	L_3	CO3
Q.5	**Solve any Two**				
	a)	How aircraft stability is maintained. State the significance of wing and tail section in maintaining the stability of an aircraft.	09	L_2	CO4
	b)	Define rate of climb? Derive the equation for climbing flight with neat sketch.	09	L_3	CO4
	c)	Classify the different primary control surfaces? Explain the functions of primary control surfaces of an aircraft.	09	L_2	CO4
Q.6	**Solve any three.**				
	a)	State the significance of super alloys used in aircraft.	06	L_2	CO3
	b)	Brief about high temperature creep and corrosion resistant materials.	06	L_2	CO3
	c)	What are the different secondary control surfaces? Explain the functions of secondary control surfaces of an aircraft.	06	L_2	CO4
	d)	Explain the thrust required and thrust available curves of an aircraft with a neat sketch.	06	L_2	CO4

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ESE