



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

AERONAUTICAL ENGINEERING

ASSIGNMENT QUESTIONS

Course Name	:	AEROSPACE PROPULSION I
Course Code	:	A52108
Class	:	III B. Tech I Semester
Branch	:	AERO
Year	:	2017 – 2018
Course Coordinator	:	Mr. C Satya Sandeep, Assistant Professor
Course Faculty	:	Dr. P.Srinivasa Rao, Professor, C Satya Sandeep, Assistant Professor,

OBJECTIVES

To meet the challenge of ensuring excellence in engineering education, the issue of quality needs to be addressed, debated and taken forward in a systematic manner. Accreditation is the principal means of quality assurance in higher education. The major emphasis of accreditation process is to measure the outcomes of the program that is being accredited.

In line with this, Faculty of Institute of Aeronautical Engineering, Hyderabad has taken a lead in incorporating philosophy of outcome based education in the process of problem solving and career development. So, all students of the institute should understand the depth and approach of course to be taught through this question bank, which will enhance learner's learning process.

S No	Question	Blooms Taxonomy Level	Course Outcome
ASSIGNMENT-I UNIT-I FLIGHT PROPULSION			
1	Derive thrust equation for gas turbine engine	Understand	1
2	Describe Air breathing Engine in detail	Apply	1
3	What are the components of gas turbine engine?	Understand	2
4	Discuss the engine performance characteristics	Understand	2
5	Discuss criteria for selecting the engine	Apply	2
6	Derive thrust equation for gas turbine engine	Create	2
7	Describe Air breathing Engine in detail.	Understand	2
8	What are the components of gas turbine engine?	Apply	2
9	Discuss the engine performance characteristics.	Apply	2
10	Discuss criteria for selecting the engine	Apply	2

S No	Question	Blooms Taxonomy Level	Course Outcome
UNIT-II PARAMETRIC CYCLE ANALYSIS OF ENGINES			
1	Derive the performance requirements of each individual part of an engine.	Create	3
2	Explain Engine components individually	Knowledge	4
3	Describe Nozzle over and under expansion	Understand	4
4	Derive Parametric cycle analysis	Apply	4
5	Explain engine design choices	Create	3
6	Discuss the engine design constraints	Create	3
7	Describe the computation of ideal turbojet and turbo fan engines	Knowledge	4
8	Describe the computation of ideal turbojet and turbo fan engines.	Understand	4
9	Derive performance cycle of Ideal Turbojet	Create	3
10	Derive performance cycle of Real Turbojet	Create	4
ASSIGNMENT-II UNIT-III AIRCRAFT ENGINE COMPONENTS			
1	Describe the subsonic inlets, its types function and design	Understand	5
2	What is a combustor, its function, performance parameter?	Remember	5
3	What is a Burner, its types, function and design?	Remember	6
4	Explain Aircraft gas turbine engine fuels- composition, specifications of commonly	Understand	6
5	Describe the subsonic inlets, its types function and design	Evaluate	6
6	What is a burner, its types, function?	Understand	5
7	What is a combustor, its performance parameter and its design	Knowledge	5
8	Explain the Aircraft gas turbine fuels, its composition and commonly used fuels	Knowledge	6
9	Differentiate RAMJET and SCRAMJET inlets	Understand	7
10	Derive area Mach relation of a nozzle	Evaluate	8
UNIT-IV ROTATING MACHINERY			
1	Explain Axial Flow Compressor, construction, flow field in it in detail	Knowledge	7
2	Explain Axial Flow Turbine, construction, flow field in it in detail.	Understand	8
3	Explain Euler's turbo-machinery equations, Velocity diagram analysis	Create	9
4	Construct the Axial flow turbines- similarities and differences with compressors	Knowledge	9
5	Discuss the Typical blade profiles.	Apply	7
6	Draw the velocity diagram of compressor.	Apply	7
7	Draw the velocity diagram of turbines	Create	8
8	Describe blade cooling techniques.	Create	9
9	What is meant by blade angle.	Apply	10
10	What is meant by blade velocity.	Knowledge	9
UNIT-V PERFORMANCE ANALYSIS – COMPONENT MATCHING			
1	Explain the non dimensionalisation and correction of engine and component characteristic parameters.	Create	8
2	Discuss Performance analysis of compressor, fan, burner, turbine, exhaust nozzle	Apply	8
3	Describe Relation between compressor pressure ratio, mass flow rate, efficiency, engine speed	Create	7

S No	Question	Blooms Taxonomy Level	Course Outcome
4	What Engine control- throttle lever setting, fuel flow, burner temperature ratio, turbine speed, flow coefficient, mass flow rate- relations	Apply	8
5	Write about Engine thrust ratings.	Understand	9
6	Explain the component design procedure	Knowledge	8
7	Explain the requirement of the component design	Knowledge	7
8	Explain the matching procedure of the components.	Create	6
9	Explain the matching of combustion chamber turbine.	Understand	7
10	Write about Engine thrust ratings.	Understand	8

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