



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

AERONAUTICAL ENGINEERING ASSIGNMENT QUESTIONS

Course Name	:	FLIGHT SCHEDULING AND OPERATIONS
Course Code	:	A72121
Class	:	IV B. Tech I Semester JNTUH - R15
Branch	:	AERO
Year	:	2018 – 2019
Course Coordinator	:	Ms. M Snigdha, Assistant Professor
Course Faculty	:	Ms. M Snigdha, 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			
NETWORK FLOWS AND INTEGER PROGRAMMING MODELS			
1	Explain the different types of network flow model using the mathematical problem of shortest path problem?	Remember	2
2	Explain the different types of network flow model using the mathematical problem of minimum cost flow problem?	Remember	2
3	Discuss the different types of network flow model using the mathematical problem of maximum flow problem?	Remember	2
4	Discuss the different types of network flow model using the mathematical problem of multi-commodity problem?	Remember	2
5	Explain integer programming models for set covering/partitioning problems?	Understand	2
6	Derive the mathematical expression for travelling salesman problem?	Remember	2
7	Distinguish between minimum cost flow and maximum cost flow problem?	Remember	2
8	Derive the mathematical formulation for the role of operations research and simulation in network flows and in integer programming models?	Remember	2
9	Explain the advantages and disadvantages of airline operations and scheduling?	Understand	2
10	Distinguish between maximum cost flow and multi-commodity problem?	Understand	2

S. No.	Question	Blooms Taxonomy Level	Course Outcome
UNIT - II			
AIRCRAFT ROUTING & MANAGEMENT OF IRREGULAR OPERATIONS			
1	Briefly explain the irregular operations in an aircraft? Explain with example?	Remember	4
2	Derive the mathematical modeling for aircraft routing? Explain with example?	Remember	4
3	Derive the mathematical expression for time band approximate model problem? Explain with block diagram?	Remember	4
4	Derive the mathematical expression for routing generators? Explain With example?	Remember	4
5	Derive the mathematical expression for routing cycles? Explain with an example problem?	Remember	4
6	Discuss the maintenance requirements for aircraft regular operations? Explain With example?	Understand	4
7	Discuss the different routing systems with an example problem? Explain With example?	Understand	4
8	Differentiate airline regular and irregular operations? Explain With example?	Understand	4
9	Discuss advantages and disadvantages of irregular operations? Explain With example?	Understand	4
10	Discuss disruption of schedule and recovery? Explain with example?	Understand	4
UNIT-III			
FLIGHT SCHEDULING			
1	Distinguish between operational feasibility and economic viability?	Understand	6
2	Discuss the types of hub and spoke flight? Explain with an example?	Understand	6
3	Explain the term flight scheduling process? Explain with block diagram?	Understand	6
4	Explain different stages of flight schedule construction? Explain with a block diagram?	Understand	7
5	Describe the different types of route systems of an airline? Explain with an example?	Remember	7
ASSIGNMENT-II			
UNIT-III			
FLIGHT SCHEDULING			
6	Discuss the scheduling process of flight? Explain with block diagram?	Remember	6
7	Discuss the stages of route development? Explain with block diagram?	Remember	7
8	Describe the term load factor and frequency for commercial aircraft?	Remember	7
9	Explain the development stages of point-to-point flight? Explain with an example?	Understand	6
10	Explain the concept of economic viability? Explain with an example?	Remember	6
UNIT-IV			
FLEET ASSIGNMENT & CREW AND MANPOWER SCHEDULING			
1	Derive the mathematical formulation problem for crew pairing? Explain with an example?	Remember	9
2	Derive the mathematical formulation problem of crew generator? Explain with an example?	Remember	8
3	Derive the mathematical formulation problem of crew rostering? Explain with an example?	Remember	8
4	Derive the mathematical formulation problem for fleet assignment? Explain with an example?	Remember	9
5	Distinguish between crew generator and crew rostering? Explain with an example?	Understand	8
6	Explain the development process of fleet diversity and fleet types? Explain with example?	Remember	7

S. No.	Question	Blooms Taxonomy Level	Course Outcome
7	Explain the significance of manpower scheduling? Explain with example?	Understand	8
8	Derive the mathematical expression for manpower scheduling. ? Explain with example?	Remember	8
9	Explain the maintenance required for aircraft routing? Explain with example?	Understand	7
10	Explain the different types of fleet assignment models? Explain with block diagram?	Remember	8
UNIT-V			
GATE ASSIGNMENT AND AIRCRAFT BOARDING STRATEGY			
1	Derive the mathematical expression for gate assignment? Explain with example?	Remember	7
2	Derive the mathematical expression for aircraft boarding process?	Remember	6
3	Explain the maintenance required for ground handling process? Explain with example?	Understand	7
4	Explain different types of baggage process for passengers traveling in airlines?	Remember	7
5	List out the different levels of handling passenger flow? Explain with example?	Remember	7
6	Explain different types of checking process for passengers? Explain with example?	Remember	6
7	Briefly explain the different types of ground handling process? explain with an example problem?	Remember	6
8	Discuss in detail about the different types of terminal gates? Explain with example?	Understand	8
9	Derive the mathematical expression for distance matrix of gate assignment?	Understand	7
10	Explain the maintenance required for gate assignment? Explain with example?	Understand	8

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