



# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

## AERONAUTICAL ENGINEERING

### TUTORIAL QUESTION BANK

<b>Course Name</b>	:	<b>AIRPORT PLANNING AND OPERATIONS</b>
<b>Course Code</b>	:	<b>R15-A82129</b>
<b>Class</b>	:	IV B. Tech II Semester
<b>Branch</b>	:	AERONAUTICAL ENGINEERING
<b>Year</b>	:	2018 – 2019
<b>Course Coordinator</b>	:	Ms. Y. Swetha , Assistant Professor, Dept of Aeronautical Engineering
<b>Course Faculty</b>	:	Ms. Y. Swetha , Assistant Professor, Dept of Aeronautical Engineering

#### OBJECTIVES

To evaluate current air transport design and economic issues and the industry value chain, and learn how to apply your air transport economic knowledge in the workplace. Some prior industry experience is useful to fully understand course content, although sessions are accessible to new industry professionals. This course demystifies the operations and scheduling environment, presenting simplified and easy-to-understand models, applied to straightforward and practical examples.

After introducing the key issues confronting operations and scheduling within airlines, Airline Operations and Scheduling goes on to provide an objective review of the various optimization models adopted in practice. Each model provides airlines with efficient solutions to a range of scenarios, and is accompanied by case studies similar to those experienced by commercial airlines. Using unique source material and combining interviews with alumni working at operations and scheduling departments of various airlines, this solution-orientated approach has been used on many courses with outstanding feedback. As well as, students are been on fuel management systems, baggage handling, aircraft maintenance plans and aircraft boarding strategies.

S No	Question	Blooms Taxonomy Level	Course Outcomes
<b>UNIT - I</b>			
<b>AIRPORT AS AN OPERATIONAL SYSTEM</b>			
<b>Part - A (Short Answer Questions)</b>			
1	Write a short note on private airports.	Remember	1
2	Define the operations of airport planning.	Remember	1
3	Write about public use airport.	Understand	1
4	Define the commercial service airports.	Remember	1
5	Define the term primary commercial service.	Remember	1
6	Define the term general aviation airports.	Understand	1
7	Discuss about reliever airports.	Remember	2
8	Explain about large hubs.	Understand	2
9	Define the term medium hubs.	Remember	2
10	Define Components of an airport-airside.	Remember	2

S No	Question	Blooms Taxonomy Level	Course Outcomes
<b>Part - B (Long Answer Questions)</b>			
1	'Airports forms an essential part of the air transport system' Justify.	Understand	3
2	Briefly explain about the different types of airport models.	Remember	3
3	Differentiate commercial service airports, primary commercial service airports and general aviation airports.	Understand	3
4	Briefly explain the different types of hubs and different patterns of hubs in airport.	Remember	3
5	Briefly explain the components of an airport-airside and landside.	Understand	4
6	Write about different organizations affected by the operation of a large airport.	Remember	4
7	Briefly explain the role of operations done in airports.	Understand	4
8	Briefly explain the complexity of commercial service airports.	Understand	4
9	Write in detail about the facilities that an airport with significant size must organize and, supply and administrate.	Remember	4
10	What are the different plans involved in airport system planning explain briefly any one?	Understand	4
<b>Part - C (Problem Solving and Critical Thinking Questions)</b>			
1	Briefly explain airport as a system-function in the airport-complexity of airport operation.	Understand	5
2	Briefly explain the hierarchical system of airport relationship with help of a neat diagram.	Remember	5
3	Briefly explain the different types of network flow model using the mathematical problem of multi- commodity problem.	Understand	5
4	Discuss the role of complexity of airline planning.	Remember	5
5	Write in detail about the national plan of integrated airports systems.	Understand	5
6	Write about function of an airport and describe change of movement type and change of mode.	Remember	5
7	Briefly explain the role of operations done in airports.	Understand	6
8	Briefly explain the different types of general aviation airports, reliever airports, and commercial service airports.	Remember	6
9	Briefly explain in detail about Gateway international airports, Regional airports, and local airports.	Understand	6
10	Write about national airport systems and discuss about the two different national systems.	Remember	6
<b>UNIT - II AIRPORT PLANNING</b>			
<b>Part – A (Short Answer Questions)</b>			
1	Define Airport system planning.	Understand	6
2	Define the term airport master plan.	Understand	6
3	Define the term Airport layout plan.	Remember	6
4	Why is forecasting required for Airport planning?	Understand	6
5	What are the facilities requirements in Airport system planning?	Remember	6
6	What are the design alternatives in Airport system planning?	Understand	6
7	Describe goal Financial plans.	Remember	6
8	Discuss the land use planning.	Understand	6
9	Write about compensatory cost approach.	Remember	7
10	List out the categories of airports listed in the NPIAS.	Understand	7

S No	Question	Blooms Taxonomy Level	Course Outcomes
<b>Part - B (Long Answer Questions)</b>			
1	Write about private investment in airports and two types of private investments.	Understand	7
2	What are the different types of budget strategies found at airports?	Understand	7
3	Discuss airports that exist in united states?	Understand	7
4	What are the differences between operating and non operating revenues?	Understand	7
5	What areas of airport operations are principal areas of potential litigations against airports?	Remember	7
6	What are the primary differences between residual approach and compensatory approach?	Understand	7
7	Briefly explain organizations that influence airport regulatory policies?	Remember	7
8	What are the four categories of O&M expenses that exist at airports? What specific expenses lie within each category?	Understand	7
9	What is a majority-in-interest clause? How do these clauses effect airport management?	Understand	7
10	What are the major financial problems that could arise in airport planning?	Remember	7
<b>Part – C (Problem Solving and Critical Thinking)</b>			
1	How are airport facilities and services priced? Explain briefly.	Understand	8
2	What grant programs exist on the federal level for airports?	Remember	8
3	Create an airport layout in a plateau region.	Understand	8
4	Build an airport master plan for free and busy cities.	Understand	8
5	How are the federal level programs funded? How may the funds from these programs be used at airports?	Understand	8
6	What types of financing programs or bond issues are available to airports?	Remember	8
7	How do bond ratings affect the financial strategies of airports?	Remember	8
8	What forms of privatization exists at airports? How does each of these strategies differ?	Understand	8
9	What do you understand by the term environmental planning? How is it related to airport planning?	Understand	8
10	Write in detail about the revenue strategies of commercial airports.	Remember	8
<b>UNIT-III GROUND HANDLING AND BAGGAGE HANDLING</b>			
<b>Part - A (Short Answer Questions)</b>			
1	Define the term Control of ground handling efficiency.	Understand	9
2	Define the term aircraft ramp servicing.	Remember	9
3	Define the functions of Ramp coordinate.	Understand	9
4	Define services involved in ramp handling when aircraft dispatches.	Remember	9
5	Define the term ramp layout.	Understand	9
6	What are FIS? What passengers typically require FIS?	Remember	9
7	Define the term Passenger handling.	Understand	9
8	Discuss the different types of airport handling.	Remember	9
9	List few Ground handling Operations.	Understand	9
10	Define Handling systems.	Understand	9
11	Define common user terminal equipment (CUTE).	Understand	9

S No	Question	Blooms Taxonomy Level	Course Outcomes
12	Briefly explain the function of aircraft parking and information system.	Remember	9
13	Briefly explain the difference between docking guidance system and aircraft parking and information system.	Understand	9
14	Briefly explain the function of fault servicing in aircraft ramp servicing.	Understand	9
15	Define the term ramp handling.	Remember	9
16	Define common use self service (CUSS)	Understand	9
17	Briefly explain the function of De-icing and washing in aircraft ramp servicing.	Remember	9
18	Briefly explain the function ground power supply in aircraft ramp servicing.	Understand	9
19	Briefly explain the difference between CUTE & CUSS.	Remember	9
20	Briefly explain about departure control.	Understand	9
21	Briefly explain the responsibilities of Ground Handling.	Understand	9
22	Define services involved at arrival in passenger services.	Remember	9
23	Define services involved in ramp handling when aircraft is loading / unloading.	Understand	9
24	Briefly explain services involved in cargo handling during export/import.	Remember	9
25	Define the term Baggage handling.	Understand	9
26	Discuss the Baggage operations.	Remember	9
27	Discuss the operating characteristics of baggage.	Understand	9
28	Briefly explain the baggage handling processes with a neat sketch.	Remember	9
29	Define the function of explosive detection system.	Understand	9
30	Briefly explain the levels involved in hold baggage screening.	Remember	9
31	Define how the baggage loading has been segregated to assets speed and ease handling.	Understand	9
32	Briefly explain the bingo card method in aircraft loading.	Understand	9
33	Briefly explain the check in and bag drop configurations.	Remember	9
34	Define the advantages of flow through configuration in check in and bag drop.	Understand	9
35	Define the linear configuration in check in and bag drop system with a neat sketch.	Understand	9
36	Define the function of sorting in baggage handling.	Remember	9
37	Briefly explain the arrival delivery performance and suggest the measures to be taken for a good handler performance.	Understand	9
38	Define the four main categories involved in order to deal with the growth in size and scale of baggage.	Understand	10
39	Define the island configuration in check in and bag drop system with a neat sketch.	Remember	10
40	Define the term processing time.	Understand	10
41	Define the term Transfer Ratio.	Remember	10
42	Briefly explain the processing time involved in baggage drop process.	Understand	10
43	Briefly explain the processing time involved in check in process.	Remember	10
44	Define the flow through configuration in check in and bag drop system with a neat sketch.	Understand	10
45	Briefly explain the processing time involved in ULD build rate process.	Remember	10

S No	Question	Blooms Taxonomy Level	Course Outcomes
46	Briefly explain the processing time involved in reclaim input rate process.	Understand	10
47	Briefly explain the processing time involved in aircraft ULD unloading process.	Remember	10
48	Briefly explain the processing time involved in inline baggage screening rate process.	Remember	10
<b>Part – B (Long Answer Questions)</b>			
1	Briefly explain the term hub and spoke flight	Understand	10
2	Briefly explain the term Control of ground handling efficiency	Understand	10
3	Briefly explain the system of an airport	Remember	10
4	Briefly explain the term aircraft ramp servicing	Understand	10
5	Briefly explain aircraft ramp servicing and different activities that are to be carried out simultaneously.	Understand	10
1	Briefly explain about flight build processes and aircraft loading.	Understand	10
2	Write about the methods of sorting bags and the factors that govern the choice of bag sorting.	Understand	10
3	Briefly Explain Baggage operations	Remember	10
4	Briefly explain the operating characteristics of baggage	Understand	10
5	Write about the two principal choices of baggage reclaim device.	Understand	10
<b>Part – C (Problem Solving and Critical Thinking)</b>			
1	Briefly explain Control of ground handling efficiency and four major Reporting tools help to determine favorable and unfavorable operations changes.	Understand	9
2	What is a ramp layout? Explain the importance and use of ramp layout in airports.	Remember	9
3	What are the different processes that comprise the passenger handling system at airport?	Remember	9
4	In what ways are passengers are categorized while travelling through airport?	Understand	10
5	What are some of technologies that exist and are being developed to improve ground access to airports?	Understand	10
1	Write in detail about the baggage-handling-system configurations that exist today.	Remember	10
2	Write about the number of traditional check in and bag drop desk Arrangements.	Understand	10
3	Briefly explain about typical set of baggage processes with help of a neat sketch.	Understand	10
4	What is bag drop? Explain about flexible check in options with a neat Figure.	Remember	10
5	Briefly explain about hold baggage screening and the multi-level Protocol adopted in The United States.	Understand	10
<b>UNIT-IV PASSENGER TERMINAL OPERATIONS AND CARGO OPERATIONS</b>			
<b>Part – A (Short Answer Questions)</b>			
1	Define the passenger terminal	Understand	11
2	Define philosophies of terminal management	Remember	11
3	Define Direct passenger services	Understand	11
4	Discuss the common strategies for aircraft boarding process	Remember	11

S No	Question	Blooms Taxonomy Level	Course Outcomes
5	Define airline related passenger services	Understand	11
6	Describe Computerization of facilitation	Remember	11
7	What are governmental requirements?	Understand	11
8	Define non-passenger related airport authority functions	Remember	11
9	Describe hubbing considerations	Understand	11
10	Briefly explain the purpose of flight crew briefing.	Remember	11
<b>Part – B (Long Answer Questions)</b>			
1	Briefly explain philosophies of terminal management?	Understand	11
2	Define the passenger information systems?	Remember	11
3	Briefly explain airline related operational functions for flight dispatch and flight planning?	Understand	11
4	Describe the different levels of aircraft boarding strategy?	Remember	11
5	Define different types of gate assignment?	Understand	11
6	Define the airline related functions for aircraft weight and balance?	Remember	11
7	Briefly explain space components and adjacencies? With block diagram?	Understand	11
8	What is the aircraft component that is to be satisfies in baggage handling at airports?	Understand	11
9	Define Air cargo market and aids to circulation?	Understand	11
10	Describe flow through the cargo terminal?	Understand	11
<b>Part – C (Problem Solving and Critical Thinking)</b>			
1	Briefly Describe the different levels of aircraft boarding strategy	Understand	11
2	Discuss the two philosophies of management of passenger at the airport terminal, and bring out the advantages and disadvantages of each?	Remember	11
3	Describe a typical turnaround of a cargo at an airport, explaining clearly the activities involved?	Understand	11
4	Discuss about the three types of functions of the passenger terminal.	Remember	11
5	Distinguish Flowth rough the cargo terminal.	Understand	11
6	Describe functions of direct passenger services?	Remember	11
7	What are terminal functions? Explain philosophies of terminal management.	Understand	11
8	Explain briefly about passenger information systems?	Remember	11
9	Describe briefly about unit loading devices?	Understand	11
10	What are the different freight operations for the integrated carrier?	Understand	11
<b>UNIT-V AIRPORT TECHNICAL SERVICES AND AIRPORT ACCESS</b>			
<b>Part - A (Short Answer Questions)</b>			
1	Write about scope of technical services.	Understand	12
2	Define Air traffic control telecommunications.	Remember	12
3	Define Meteorology.	Understand	12
4	Discuss aeronautical information related to technical services.	Remember	12
5	Write about airdrome control.	Understand	12
6	Briefly explain about approach control.	Remember	12
7	Write about world area forecast system.	Understand	12
8	What is PIREP? Write about its following elements.	Remember	12

S No	Question	Blooms Taxonomy Level	Course Outcomes
9	Write about philosophies of terminal management.	Understand	12
10	What are the classes of a airspace?	Remember	12
<b>Part - B (Long Answer Questions)</b>			
1	Define the significance of Air traffic control.	Understand	12
2	Briefly explain how the information for ATC, SAR and AIS are provided.	Remember	12
3	Explain briefly about the three sets of flight rules in detail.	Understand	12
4	Write in detail about different NOTAM codes.	Remember	12
5	Explain briefly about satellite navigation system and broadcast services in regard with airdrome services.	Understand	12
6	Describe access modes-in-town and off-airport terminals.	Remember	12
7	Explain briefly about operational structure, characteristics and procedures.	Understand	12
8	Explain with help of a flow chart, sequential capacity constraints on out bound airport throughput.	Remember	12
9	Describe access interaction with passenger terminal operations.	Understand	12
10	Describe access users and modal choice.	Remember	12
<b>Part – C (Problem Solving and Critical Thinking)</b>			
1	Describe briefly about the terms handling within the terminal and flow Through the cargo terminal.	Understand	12
2	Write about different international aeronautical telecommunications services and different classifications in telecommunications services.	Understand	12
3	Write about the consequences of a missing flight. And with help of a neat diagram write about the effect of the risk of missing a flight on average passenger terminal dwell times.	Understand	12
4	Briefly explain in detail about different safety management systems in an airport and different regulatory authorities.	Understand	12
5	Briefly explain about Air traffic control and different types of flight rules that are stated by air traffic control.	Understand	12
6	Describe briefly Handling within the terminal.	Knowledge	12
7	Briefly Explain Factors Affecting Access-Mode Choice.	Knowledge	12
8	Briefly Explain Aircraft observations and Reports	Understand	12
9	Briefly explain Meteorological Observations and Reports	Understand	12
10	Briefly explain the different functions of air traffic control.	Understand	12

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