



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

AERONAUTICAL ENGINEERING

DEFINITIONS AND TERMINOLOGY QUESTION BANK

Course Name	:	AIR TRANSPORTATION SYSTEMS
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Program	:	B.Tech
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Course Faculty	:	Mr. P Anudeep, Assistant Professor, AE

OBJECTIVES:

I	To help students to consider in depth the terminology and nomenclature used in the syllabus.
II	To focus on the meaning of new words / terminology/nomenclature

DEFINITIONS AND TERMINOLOGY QUESTION BANK

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
UNIT-I						
1	Define aerospace industry.	Assemblage of manufacturing concerns that deal with vehicular flight within and beyond Earth's atmosphere	Remember	CO1	CLO1	CAAE526.01
2	What is aviation?	Aviation deals with travel by air, the aviation industry is the business sector dedicated to manufacturing and operating all types of aircraft. Air traffic controllers, when they are awake, are concerned with aviation safety	Remember	CO1	CLO3	CAAE526.03
3	Explain about air transportation industry.	The air transport industry is the global network of commercial aircraft operators, airports, air navigation Service providers and the manufacturers of aircraft and their components. It is responsible for connecting the global economy	Understand	CO1	CLO2	CAAE526.02
4	Explain the term Airline industry.	A system or organization that provides scheduled flights for passengers or cargo	Understand	CO1	CLO3	CAAE526.03

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
5	What are oligopolists?	A market situation in which control over the supply of a commodity is held by a small number of producers each of whom can influence prices and thus directly affect the position of competitors	Remember	CO1	CLO1	CAAE526.01
6	Define monopoly.	A monopoly is a company which is the only one providing a product or service	Remember	CO1	CLO1	CAAE526.01
7	Define passenger load factor.	Load factor is an indicator that measures the percentage of available seating capacity that is filled with passengers.	Remember	CO1	CLO3	CAAE526.03
8	Define Trade balance.	A country's trade balance is the difference in value, over a period, between the goods it imports and the goods it exports	Remember	CO1	CLO3	CAAE526.03
9	Explain the term Economic Growth	Economic growth is an increase in the production of goods and services over a specific period. To be most accurate, the measurement must remove the effects of inflation.	Understand	CO1	CLO3	CAAE526.03
10	Define Inflation	Inflation is the increase in the prices of goods and services over time. Inflation reduces the purchasing power of each unit of currency	Remember	CO1	CLO1	CAAE526.01
11	Explain about Airline Fleet.	A group or assemblage of aircraft. A fleet is usually a large group of ships, but it can be any group of vessels like planes or cars that operate as a unit	Understand	CO1	CLO2	CAAE526.02
12	Define Profitability.	Profitability is the ability of a business to earn a profit. A profit is what is left of the revenue a business generates after it pays all expenses directly related to the generation of the revenue, such as producing a product, and other expenses related to the conduct of the business activities	Remember	CO1	CLO2	CAAE526.02
13	What is Deregulation?	The act or process of removing restrictions and regulations	Remember	CO1	CLO1	CAAE526.01
14	What is Business Aviation?	Business aviation is the use of any general aviation aircraft for a business purpose	Remember	CO1	CLO2	CAAE526.02
15	Define air traffic control.	Air traffic control (ATC) is a service provided by ground-based air traffic controllers who	Remember	CO1	CLO2	CAAE526.02

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		direct aircraft on the ground and through controlled airspace, and can provide advisory services to aircraft in non-controlled airspace				
UNIT-II						
1	Define Shape of demand curve.	The demand curve is a visual representation of how many units of a good or service will be bought at each possible price. It plots the relationship between quantity and price that's been calculated on the demand schedule.	Remember	CO2	CLO5	CAAE526.05
2	What is Demand forecasting?	Demand Forecasting refers to the process of predicting the future demand for the firm's product. In other words, demand forecasting is comprised of a series of steps that involves the anticipation of demand for a product in future under both controllable and non-controllable factors.	Remember	CO2	CLO6	CAAE526.06
3	Explain about forecasting	To calculate or predict (some future event or condition) usually as a result of study and analysis of available pertinent data	Understand	CO2	CLO6	CAAE526.06
4	Explain the term 'regulation'.	Imposition of rules by government, backed using penalties that are intended specifically to modify the economic behavior of individuals and firms in the private sector	Understand	CO2	CLO6	CAAE526.06
5	What is an ICAO	The International Civil Aviation Organization (ICAO) is a UN specialized agency, established by States in 1944 to manage the administration and governance of the Convention on International Civil Aviation (Chicago Convention).	Remember	CO2	CLO7	CAAE526.07
6	Define IATA.	IATA International Air Transport Association. Established in 1945 and headquartered in Geneva (Switzerland), IATA is a trade association serving air carriers, passengers, shippers, travel agents and governments.	Remember	CO2	CLO7	CAAE526.07

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7	What is DGCA?	The Directorate General of Civil Aviation (DGCA) is the Indian governmental regulatory body for civil aviation under the Ministry of Civil Aviation. This directorate investigates aviation accidents and incidents.	Remember	CO2	CLO7	CAAE526.07
8	Explain about FAA.	The Federal Aviation Administration (FAA) of the United States is a national authority with powers to regulate all aspects of civil aviation.	Understand	CO2	CLO4	CAAE526.04
9	What is privatization?	The transfer of a business, industry, or service from public to private ownership and control	Remember	CO2	CLO6	CAAE526.06
10	What is communication?	The imparting or exchanging of information by speaking, writing, or using some other medium.	Remember	CO2	CLO4	CAAE526.04
11	Define navigation	The process or activity of accurately ascertaining one's position and planning and following a route.	Remember	CO2	CLO4	CAAE526.04
12	Explain about surveillance systems	Surveillance system a closed-circuit television system used to maintain close observation of a person or group	Understand	CO2	CLO4	CAAE526.04
13	Define VHF.	The VHF (very high frequency) range of the radio spectrum is the band extending from 30 MHz to 300 MHz	Remember	CO2	CLO6	CAAE526.06
14	Explain about ACARS.	ACARS is a digital data link system for the transmission of messages between aircraft and ground stations	Understand	CO2	CLO6	CAAE526.06
15	Define INS	A form of "Dead-Reckoning" that relies on accelerometers and gyroscopes to detect acceleration and velocity respectively along 3 perpendicular axes. An approximate 2 or 3-dimensional position can be constantly determined in relation to a known starting point, velocity and orientation.	Remember	CO2	CLO4	CAAE526.04
UNIT-III						
1	Explain about cash-flow	The total amount of money being transferred into and out of a business, especially as affecting liquidity.	Remember	CO3	CLO8	CAAE526.08
2	Define aircraft	The sum of the aggregate	Remember	CO3	CLO8	CAAE526.08

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	price	flyaway cost and the research & development cost is then divided by the number of aircraft, equivalent to average total production cost				
3	Explain about Republic Airlines	Republic Airlines (IATA: RC, ICAO: REP, Call sign: REPUBLIC) was a United States airline formed by the merger of North Central Airlines and Southern Airways on July 1, 1979	Understand	CO3	CLO6	CAAE526.06
4	Explain the term Direct operating cost	The total of flight operations costs (flight crew salaries and expenses, aircraft fuel and oils, aircraft insurances, aircraft rentals, flight crew training – where not amortized, and other flight expenses), maintenance and overhaul costs, depreciation and amortization (aircraft, required ground equipment and associated property).	Understand	CO3	CLO8	CAAE526.08
5	What is an indirect operating cost	The total of user charges and airport expenses (landing and airport charges, en-route facility and navigation charges, and handling expenses), passenger services costs, catering, security, general and administrative, and other operating expenses.	Remember	CO3	CLO8	CAAE526.08
6	What is Balancing efficiency	The difference between being efficient and effective is that efficiency refers to how well you do something while effectiveness refers to how useful that “something” is.	Remember	CO3	CLO5	CAAE526.05
7	Define the term payload	The payload of an aircraft or spacecraft is the amount or weight of things or people that it is carrying.	Remember	CO3	CLO8	CAAE526.08
8	Explain about fuel efficiency	a measure of how much energy is produced by an engine in relation to the amount of fuel that it uses	Understand	CO3	CLO6	CAAE526.06
9	Define operating speed	Speed combines two factors, the distance travelled in a certain amount of time. In aviation speed is most often expressed in knots (kt). One knot is one nautical mile per hour. These	Remember	CO3	CLO4	CAAE526.04

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		speeds are calculated prior to a take-off in accordance with aircraft weight, environmental factors				
10	What is an altitude?	the height of an object or point in relation to sea level or ground level.	Remember	CO3	CLO7	CAAE526.07
11	Define Airplane reference field length	Airplane reference field length is defined as "the minimum field length required for take-off at maximum certificated take-off mass, at sea level, in International Standard Atmosphere conditions in still air and with zero runway slope	Remember	CO3	CLO5	CAAE526.05
12	Define wake-vortices	Wake turbulence is a disturbance in the atmosphere that forms behind an aircraft as it passes through the air	Remember	CO3	CLO9	CAAE526.09
13	Define the term ASK	Available seat miles (ASM) or Available seat kilometers (ASK) airline is passenger carrying capacity. It is equal to the number of seats available multiplied by the number of miles or kilometers flown.	Remember	CO3	CLO8	CAAE526.08
14	What is flight deck	The crew compartment in an airliner	Remember	CO3	CLO6	CAAE526.06
15	Explain about Typical operating costs	Operating costs do not include capital outlays, or the costs incurred in design and implementation phases of a new process.	Understand	CO3	CLO6	CAAE526.06
UNIT-IV						
1	What is airport demand?	Potential Capacity is defined as 'the maximum number of aircraft that the airport is able to process per unit of time for given levels of demand (arrivals)'. LIBRARY	Remember	CO4	CLO10	CAAE526.10
2	What are runway characteristics ?	According to the International Civil Aviation Organization (ICAO), runway is a "defined rectangular area on a land aerodrome prepared for the landing and takeoff of aircraft". Runways may be a man-made surface (often asphalt, concrete, or a mixture of both) or a natural surface (grass, dirt, gravel, ice, or salt)	Remember	CO4	CLO10	CAAE526.10

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
3	What are aerodrome areas	Aerodromes include small general aviation airfields, large commercial airports, and military airbases. A water aerodrome is an area of open water used regularly by seaplanes or amphibious aircraft for landing and taking off	Remember	CO4	CLO10	CAAE526.10
4	Explain obstacle safeguarding	There are three main types of aerodrome safeguarding; physical safeguarding which protects a set of flight safety surfaces up to a 30km radius around the airfield, technical safeguarding which protects aircraft navigational equipment from any interference or disruption, and wildlife management which prevents any development areas from creating an environment attractive to birds	Understand	CO4	CLO13	CAAE526.13
5	What is a Runway capacity	The capacity per hour used in specifying the number of slots available for schedule coordination purposes; used extensively outside US; no standard method for its determination; generally, set to about 85-90% of saturation capacity; may be affected by apron capacity and terminal capacity	Remember	CO4	CLO13	CAAE526.13
6	Define Route selection	Flight planning is the process of producing a flight plan to describe a proposed aircraft flight. Within these airways, aircraft must maintain flight levels, specified altitudes usually separated vertically by 1000 or 2000 feet (305 or 610 m), depending on the route being flown and the direction of travel.	Remember	CO4	CLO11	CAAE526.11
7	Define airline fleet planning	Fleet planning (selecting the "right" aircraft at the "right" time) is one of the most important steps in the airline planning process. It describes the number of aircraft of the same type, the same aircraft family or the same manufacturer in a fleet	Remember	CO4	CLO11	CAAE526.11
8	Define RPK	Revenue passenger miles (RPMs) and revenue passenger kilometers	Remember	CO4	CLO11	CAAE526.11

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		(RPKs) are measures of traffic for an airline flight, bus, or train calculated by multiplying the number of revenue-paying passengers aboard the vehicle by the distance traveled System may introduce phase lead or phase lag, or both.				
9	Explain the term Revenue generation	Revenue generation is a process by which company plans to market and sell its products/services in order to generate income.	Understand	CO4	CLO11	CAAE526.11
10	Explain yield management	Yield management is a variable pricing strategy, based on understanding, anticipating and influencing consumer behavior in order to maximize revenue or profits from a fixed, time-limited resource	Understand	CO4	CLO11	CAAE526.11
11	Define Terminal sizing	For a passenger terminal, the most important parameter is Peak Hour Passengers (PHP). The definition of this concept is critical. Peak Hour Passengers refers to the number of passengers that are processed by the terminal at a time. It is a measure of the terminal's capacity	Remember	CO4	CLO10	CAAE526.10
12	What is Airline scheduling?	The flight schedule is the central element of an airline's planning process aimed at optimizing the deployment of the airlines resources in order to meet demands and maximize profits	Remember	CO4	CLO12	CAAE526.12
13	Define financial viability	Financial viability is the ability to generate enough income to meet operating payments, debt commitments and, where applicable, to allow growth while maintaining service levels	Remember	CO4	CLO9	CAAE526.09
14	What is regulatory compliance	Regulatory compliance is the process of putting in place the measures necessary to comply with the regulations, laws, and guidelines that govern the operations of a business	Remember	CO4	CLO9	CAAE526.09
15	Define Airport terminal	An airport terminal building is served as the pathway between the ground facilities and the skies. Both departure and arrival	Remember	CO4	CLO12	CAAE526.12

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		passengers need to go through the terminal when board and disembark from aircraft. An airport can have only one or many terminals and concourses depend on the size of the airport, but they all serve the same functions				
UNIT-V						
1	Define separation minima	Separation is the name for the concept of keeping an aircraft outside a minimum distance from another aircraft to reduce the risk of those aircraft colliding, as well as prevent accidents due to secondary factors, such as wake turbulence. Separation can also apply to terrain, obstacles, and controlled airspace, wherein an aircraft must stay at a minimum distance from a block of airspace	Remember	CO5	CLO14	CAAE526.14
2	What are airspace sectors	The process of sector definition comprises virtual division of airspace. Thus, the provision of air traffic services is decomposed, in the different sectors, into tasks with manageable workload	Remember	CO5	CLO14	CAAE526.14
3	Define airport capacity	From the operation of the airspace and runways through to the flow of passengers through the terminals, airport capacity is a complex issue that hinges on a whole range of factors	Remember	CO5	CLO14	CAAE526.14
4	Explain demand and delay	The determinants of demand are factors that cause fluctuations in the economic demand for a product or a service	Understand	CO5	CLO13	CAAE526.13
5	Define radar	a system for detecting the presence, direction, distance, and speed of aircraft, ships, and other objects, by sending out pulses of radio waves which are reflected off the object back to the source	Remember	CO5	CLO13	CAAE526.13
6	Explain about navigation systems	The basic principles of air navigation are identical to general navigation, which includes the process of planning, recording, and controlling the movement of a craft from one	Understand	CO5	CLO13	CAAE526.13

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		place to another				
7	What is AFTN	The Aeronautical Fixed Telecommunication Network (AFTN) is a worldwide system of aeronautical fixed circuits provided, as part of the Aeronautical Fixed Service, for the exchange of messages and/or digital data between aeronautical fixed stations having the same or compatible communications characteristics	Remember	CO5	CLO13	CAAE526.13
8	Define flight information region	A flight information region (FIR) is a specified region of airspace in which a flight information service and an alerting service (ALRS) are provided. It is the largest regular division of airspace in use in the world today	Remember	CO5	CLO15	CAAE526.15
9	Explain the term SAR	Approach surveillance radar (ASR or SRA) is a type of radar instrument approach provided with active assistance from air traffic control. The only airborne radio equipment required for radar approaches is a functioning radio transmitter and receiver.	Understand	CO5	CLO15	CAAE526.15
10	What is ILS	Instrument Landing System (ILS) is defined as a precision runway approach aid based on two radio beams which together provide pilots with both vertical and horizontal guidance during an approach to land	Remember	CO5	CLO13	CAAE526.13
11	Explain about GPWS	A Ground Proximity Warning System (GPWS) is a system designed to alert pilots if their aircraft is in immediate danger of flying into the ground or an obstacle	Understand	CO5	CLO13	CAAE526.13
12	Define TCAS	A traffic collision avoidance system or traffic alert and collision avoidance system is an aircraft collision avoidance system designed to reduce the incidence of mid-air collisions between aircraft	Remember	CO5	CLO14	CAAE526.14
13	What is EFIS	An Electronic Flight Instrument System (EFIS) is a flight deck instrument display system in	Remember	CO5	CLO14	CAAE526.14

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		which the display technology used is electronic rather than electromechanical				
14	Explain about FMS	A flight management system (FMS) is a fundamental component of a modern airliner's avionics. An FMS is a specialized computer system that automates a wide variety of in-flight tasks, reducing the workload on the flight crew to the point that modern civilian aircraft no longer carry flight engineers or navigators.	Understand	CO5	CLO14	CAAE526.14
15	What is DME	Distance measuring equipment (DME) is a transponder-based radio navigation technology that measures slant range distance by timing the propagation delay of VHF or UHF radio signals. ... To maintain compatibility, DME is functionally identical to the distance measuring component of TACAN (Tactical Air Navigation).	Remember	CO5	CLO14	CAAE526.14

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