



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

AERONAUTICAL ENGINEERING

DEFINITIONS AND TERMINOLOGY QUESTION BANK

Course Name	:	AIRCRAFT SYSTEMS AND CONTROL
Course Code	:	AAE010
Program	:	B.Tech
Semester	:	V
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Section	:	A and B
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Course Faculty	:	Mr. R.Suresh Kumar, 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-1						
1	Define Air Traffic Controller (ATCO)	The person or persons in charge of providing the services comprised within the air traffic control unit as part of the air traffic services unit.	Remember	CO 1	CLO1	AAE010.01
2	What is Command and control link?	The data link between the remotely-piloted aircraft and the remote pilot station for the purposes of managing the flight .	Understand	CO 1	CLO2	AAE010.02
3	Define Aircraft?	Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.	Remember	CO 1	CLO1	AAE010.01
4	What is meant by Line of Sight?	An operation in which the remote crew does not maintain direct visual/radio contact with the aircraft to manage its flight and meet separation and collision avoidance responsibilities but uses a satellite, antennae or other aircraft (incl. other RPAS) as relay.	Understand	CO 1	CLO1	AAE010.01
5	What is Radio line-of-sight?	A direct electronic point-to-point contact between a transmitter and a receiver.	Understand	CO 1	CLO1	AAE010.01
6	What is Uncontrolled	Airspace where an Air Traffic Control (ATC) service is not deemed necessary or cannot be	Understand	CO 1	CLO2	AAE010.02

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	Airspace?	provided for practical reasons. In that case, the separation task relies solely on the pilot. ATC does not exercise any executive authority in uncontrolled airspace, but may provide basic information services to aircraft in radio contact.				
7	Define Unmanned aircraft.	An aircraft which is intended to operate with no pilot on board.	Remember	CO 1	CLO3	AAE010.03
8	What is meant by Visual line-of-sight operation?	An operation in which the remote crew maintains direct visual contact with the aircraft to manage its flight and meet separation and collision avoidance responsibilities.	Understand	CO 1	CLO3	AAE010.03
9	Define Altitude.	The vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL).	Remember	CO 1	CLO3	AAE010.03
10	What is Secondary power system?	To provide a source of electrical, hydraulic and cooling power for aircraft on the ground, and to provide a form of energy to start the engines.	Understand	CO 1	CLO1	AAE010.01
11	Define Landing gear	To ensure that the aircraft is able to land safely at all loads and on designated runway surfaces. This includes the sequencing of all associated doors leg and wheel assemblies to fit in the landing gear bay.	Remember	CO 1	CLO1	AAE010.01
12	Define Flight Management System.	To provide a means of entering flight plans and allowing automatic operation of the aircraft in accordance with the plans.	Remember	CO 1	CLO2	AAE010.02
13	Define Head-up display.	To provide the crew with primary aircraft information and weapon aiming Information.	Understand	CO 1	CLO3	AAE010.03
14	What is Data link?	To provide transmission and receipt of messages under secure communications Using data rather than voice.	Remember	CO 1	CLO1	AAE010.01
15	What is meant by redundancy?	The inclusion of extra components which are not strictly necessary to functioning, in case of failure in other components.	Understand	CO 1	CLO2	AAE010.02
UNIT-2						
1	Define Actuator	An end device of a control system, that manipulates a physical variable such as a valve opening or position of a machine part.	Remember	CO 2	CLO4	AAE010.04
2	Define AC power	Electric power where the current reverses direction periodically.	Understand	CO 2	CLO5	AAE010.05
3	Define Autotransformer	A transformer where the primary and secondary circuits share some of the transformer windings.	Remember	CO 2	CLO5	AAE010.05
4	Define Capacitor	An electrical component that stores energy in an electric field.	Understand	CO 2	CLO4	AAE010.04
5	What is Electrostatic motor	A motor that relies on the forces generated by electric fields, instead of magnetic fields.	Understand	CO 2	CLO5	AAE010.05
6	Define Linear motor	An electrical machine that generates electric force in a straight line by the interaction of its moving parts and magnetic fields.	Remember	CO 2	CLO6	AAE010.06
7	What is Compressor?	A key component of the refrigeration system, raising the pressure (and hence temperature) of the refrigerant and circulating it through a closed loop system.	Understand	CO 2	CLO5	AAE010.05
8	Define Condenser	A vessel or an air cooled coil that removes the superheat of compression, condensing the	Remember	CO 2	CLO4	AAE010.04

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		refrigerant gas into a high pressure liquid.				
9	Define Heat exchanger	A heat exchanger is a piece of equipment built for efficient heat transfer between two physically separated fluids.	Understand	CO 2	CLO4	AAE010.04
10	What is Hypoxia?	Is a condition in which the body or a region of the body is deprived of adequate oxygen supply at the tissue level.	Remember	CO 2	CLO5	AAE010.05
11	What is Galley?	The Food preparation area of an aircraft.	Understand	CO 2	CLO6	AAE010.06
12	Define Relative humidity	The amount of moisture in air compared with the maximal amount that the air could contain at the same temperature.	Remember	CO 2	CLO4	AAE010.04
13	What is Vapor pressure	The pressure of a vapor in equilibrium with its liquid or solid form.	Understand	CO 2	CLO5	AAE010.05
14	What is meant by Bleed air?	The Air from the compressor used for cabin ventilation.	Remember	CO 2	CLO6	AAE010.06
15	Define Ventilation	The process of supplying and removing air mechanically to and from occupied spaces of an aircraft; air might or might not be conditioned.	Understand	CO 2	CLO4	AAE010.04
UNIT-3						
1	Define axial piston pump.	Axial piston pumps come in swash plate, bent axis, and wobble plate constructions and are designed for the medium and high pressure ranges.	Remember	CO 3	CLO9	AAE010.09
2	Define closed hydraulic circuit.	The hydraulic oil stays in the working lines and continuously flows from the hydraulic pump to the consumer load and back again. Internal leaks that develop are filled in again by a supply pressure pump.	Understand	CO 3	CLO7	AAE010.07
3	Define differential pressure.	the difference between the input and output pressures measures under certain conditions	Remember	CO 3	CLO8	AAE010.08
4	What is gear pump?	The oil volume enclosed in the gap between teeth is conveyed from the intake to the discharge side of the pump by the turning of the gear, displaced to the contact point of the wheel and forced into the pressure connection.	Understand	CO 3	CLO7	AAE010.07
5	What is hydraulic accumulator?	Hydraulic oil is pressed under pressure in a pressure tank filled with nitrogen. The hydraulic oil compresses the nitrogen and later on is available in the system as stored energy.	Remember	CO 3	CLO7	AAE010.07
6	Define hydraulic motor.	Hydraulic motors or hydromotors convert the energy generated by hydraulic pumps back into mechanical work. Many pumps can be used as hydromotors as well without changes to the construction.	Understand	CO 3	CLO8	AAE010.08
7	Define volumetric efficiency.	Volumetric efficiency describes the ratio of the effective volume flow rate to the theoretical volume flow rate on the basis of the displacement kinematics and rotation speed.	Remember	CO 3	CLO9	AAE010.09
8	What is Air motor?	A device which converts pneumatic fluid power into mechanical torque and motion. It usually provides rotary mechanical motion.	Understand	CO 3	CLO7	AAE010.07

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9	Define Compressor	A device which converts mechanical force and motion into pneumatic fluid power.	Remember	CO 3	CLO7	AAE010.07
10	What is meant by Servovalve?	A valve which modulates output as a function of an input command.	Understand	CO 3	CLO8	AAE010.08
11	What is Altimeter?	The pressure altimeter, also known as the barometric altimeter, is used to determine changes in air pressure that occur as the aircraft's altitude changes.	Remember	CO 3	CLO7	AAE010.07
12	What is Vertical Speed Indicator?	The variometer, also known as the vertical speed indicator (VSI) or the vertical velocity indicator (VVI), is the pitot-static instrument used to determine whether or not an aircraft is flying in level flight.	Understand	CO 3	CLO9	AAE010.09
13	Define Pitot Pressure	The pitot pressure is a measure of ram air pressure (the air pressure created by vehicle motion or the air ramming into the tube), which, under ideal conditions, is equal to stagnation pressure, also called total pressure.	Remember	CO 3	CLO9	AAE010.09
14	What is Heat Exchanger?	A device that transfers heat through a conducting wall from one fluid to another.	Understand	CO 3	CLO8	AAE010.08
15	Define Reservoir.	A container for storage of liquid in a fluid power system.	Remember	CO 3	CLO7	AAE010.07
UNIT-4						
1	What is Fuel control unit.	The fuel-metering device used on a turbine engine that meters the proper quantity of fuel to be fed into the burners of the engine	Remember	CO 4	CLO10	AAE010.10
2	Define Fuel efficiency	Defined as the amount of fuel used to produce a specific thrust or horsepower divided by the total potential power contained in the same amount of fuel.	Understand	CO 4	CLO11	AAE010.11
3	Define Fuel heaters	A radiator-like device which has fuel passing through the core.	Remember	CO 4	CLO12	AAE010.12
4	Define Fuel injection	A fuel metering system used on some aircraft reciprocating engines in which a constant flow of fuel is fed to injection nozzles in the heads of all cylinders just outside of the intake valve.	Understand	CO 4	CLO11	AAE010.11
5	Define Gas turbine engine	A form of heat engine in which burning fuel adds energy to compressed air and accelerates the air through the remainder of the engine.	Remember	CO 4	CLO10	AAE010.16
6	Define Internal combustion engines	An engine that produces power as a result of expanding hot gases from the combustion of fuel and air within the engine itself.	Understand	CO 4	CLO10	AAE010.10
7	What is Specific fuel consumption?	Number of pounds of fuel consumed in 1 hour to produce 1 HP	Remember	CO 4	CLO11	AAE010.11
8	Define Throttle	The valve in a carburetor or fuel control unit that determines the amount of fuel-air mixture that is fed to the engine.	Understand	CO 4	CLO12	AAE010.12
9	What is Thrust line?	An imaginary line passing through the center of the propeller hub, perpendicular to the plane of the propeller rotation.	Remember	CO 4	CLO11	AAE010.11

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10	Define Thrust reversers.	Devices which redirect the flow of jet exhaust to reverse the direction of thrust.	Understand	CO 4	CLO10	AAE010.10
11	What is Thrust?	The force which imparts a change in the velocity of a mass.	Remember	CO 4	CLO12	AAE010.12
12	Define Turbine blades	The portion of the turbine assembly that absorbs the energy of the expanding gases and converts it into rotational energy.	Understand	CO 4	CLO10	AAE010.10
13	Define throat of a nozzle	The smallest cross-sectional area of the nozzle is called the throat of the nozzle.	Remember	CO 4	CLO11	AAE010.11
14	Define Turbine outlet temperature	The temperature of the gases as they exit the turbine section.	Understand	CO 4	CLO12	AAE010.12
15	What is Zero fuel weight	The weight of the aircraft to include all useful load except fuel.	Remember	CO 4	CLO10	AAE010.10
UNIT-5						
1	Define Adverse Yaw	Yaw generated when the ailerons are used. The lifting wing generates more drag, causing an airplane to yaw (turn) toward it.	Remember	CO 5	CLO14	AAE010.14
2	What is air speed indicator?	An instrument or device that measures the air speed of an aircraft through an air mass, but not its ground speed.	Understand	CO 5	CLO15	AAE010.15
3	Define angle of incidence	The angle at which an airfoil is normally fixed in relation to the longitudinal axis of an aircraft.	Remember	CO 5	CLO13	AAE010.13
4	What is aspect ratio?	The ratio of the span to the chord of an airfoil—a high-aspect ratio wing has wide span and narrow chord, and vice-versa for a low-aspect ratio wing.	Understand	CO 5	CLO13	AAE010.13
5	What is Downwash?	The air deflected perpendicular to the direction of movement of an airfoil.	Remember	CO 5	CLO14	AAE010.14
6	Define flap	A control surface combining the functions of a FLAP and an AILERON.	Understand	CO 5	CLO15	AAE010.15
7	What is slipstream?	The flow of air driven backward by a propeller or downward by a rotor.	Remember	CO 5	CLO13	AAE010.13
8	Define SLOT	A long, narrow, spanwise gap in a wing, usually near the leading edge, to improve airflow at high angles of attack for slower landing speeds.	Understand	CO 5	CLO15	AAE010.15
9	What is wing loading?	The maximum take-off gross weight of an aircraft divided by its wing area.	Remember	CO 5	CLO14	AAE010.14
10	What is winglet?	A small, stabilizing, rudderlike addition to the tips of a wing to control or employ air movement.	Understand	CO 5	CLO13	AAE010.13
11	Define Instrument landing system	An electronic system that provides both horizontal and vertical guidance to a specific runway, used to execute a precision instrument approach procedure.	Remember	CO 5	CLO15	AAE010.15
12	What is Automatic Vehicle Location	The technique of using a navigation system to determine a vehicle's position, which is then transmitted to a central unit that monitors and tracks the vehicle's position and movement	Understand	CO 5	CLO14	AAE010.14
13	Define Nautical Mile	A distance of 1851999 meters which is one minute of arc of a great circle of the Earth (1.15 times longer than a statute mile, or 6076.1 feet)	Remember	CO 5	CLO13	AAE010.13

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14	What is Radio Direction Finder?	A radio receiver that features a directional antenna and a visual null indicator for use in determining lines of position from radiobeacons at known positions	Understand	CO 5	CLO15	AAE010.15
15	Define Elevation	The vertical distance of a point above or below a reference surface, such as sea level.	Remember	CO 5	CLO14	AAE010.14

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