Part-BFCL BPL Examinations – 050 Meteorology

Syllabus Reference	AMC1 BFCL.130 Reference	Syllabus Details & Associated Learning Objective
050.00.00.00	3	METEOROLOGY
050.01.00.00	3.1	The atmosphere
050.01.01.00		Composition, extent and vertical division
050.01.01.01		Structure of the atmosphere
050.01.01.02		Troposphere
050.01.02.00		Air temperature
050.01.02.01		Definition and units
050.01.02.02		Vertical distribution of temperature Transfer of heat
050.01.02.03		Lapse rates, stability and instability
050.01.02.04		Development of inversions and types of inversions
050.01.02.05		Temperature near the earth's surface, surface effects, diurnal and seasonal variation, effect of clouds and effect of wind
050.01.03.00		Atmospheric pressure
050.01.03.01		Barometric pressure and isobars
050.01.03.02		Pressure variation with height
050.01.03.03		Reduction of pressure to mean sea level
050.01.03.04		Relationship between surface pressure centres and pressure centres aloft
050.01.04.00		Air density
050.01.04.01		Relationship between pressure, temperature and density
050.01.04.02		ISA
050.02.00.00		ICAO standard atmosphere
050.02.01.00		Altimetry
050.02.01.01		Terminology and definitions
050.02.01.02		Altimeter and altimeter settings
050.02.01.03		Calculations
050.02.01.04		Effect of accelerated airflow due to topography
050.03.00.00	3.2	Wind
050.03.01.00		Definition and measurement of wind
050.03.01.01		Definition and measurement
050.03.02.00		Primary cause of wind
050.03.02.01		Primary cause of wind, pressure gradient, coriolis force and gradient wind
050.03.02.02		Variation of wind in the friction layer
050.03.02.03		Effects of convergence and divergence
050.03.03.00		General global circulation
050.03.03.01		General circulation around the globe
050.03.04.00		Local winds
050.03.04.01		Anabatic and katabatic winds, mountain and valley winds, Venturi effects, land and sea breezes
050.03.05.00		Mountain waves (standing waves, lee waves)
050.03.05.01		Origin and characteristics
050.03.06.00		Turbulence
050.03.06.01		Description and types of turbulence

050.03.06.02		Formation and location of turbulence
050.04.00.00	3.3	Thermodynamics
050.04.01.00		Humidity
050.04.01.01		Water vapour in the atmosphere
050.04.01.02		Mixing ratio
050.04.01.03		Temperature/dew point, relative humidity
050.04.02.00		Change of state of aggregation
050.04.02.01		Condensation, evaporation, sublimation, freezing and melting, latent heat
050.04.03.00		Adiabatic processes
050.04.03.01		Adiabatic processes, stability of the atmosphere
050.05.00.00	3.4	Clouds and fog
050.05.01.00		Cloud formation and description
050.05.01.01		Cooling by adiabatic expansion and by advection
050.05.01.02		Cloud types and cloud classification
050.05.01.03		Influence of inversions on cloud development
050.05.02.00		Fog, mist, haze
050.05.02.01		General aspects
050.05.02.02		Radiation fog
050.05.02.03		Advection fog
050.05.02.04		Steaming fog
050.05.02.05		Frontal fog
050.05.02.06		Orographic fog (hill fog)
050.06.00.00	3.5	Precipitation
050.06.01.00		Development of precipitation
050.06.01.01		Processes of development of precipitation
050.06.02.00		Types of precipitation
050.06.02.01		Types of precipitation, relationship with cloud types
050.07.00.00	3.6	Air masses and fronts
050.07.01.00		Air masses
050.07.01.01		Description, classification and source regions of air masses
050.07.01.02		Modifications of air masses
050.07.02.00		Fronts
050.07.02.01		General aspects
050.07.02.02		Warm front, associated clouds and weather
050.07.02.03		Cold front, associated clouds and weather
050.07.02.04		Warm sector, associated clouds and weather
050.07.02.05		Weather behind the cold front
050.07.02.06		Occlusions, associated clouds and weather
050.07.02.07		Stationary front, associated clouds and weather
050.07.02.08		Movement of fronts and pressure systems, life cycle
050.07.02.09		Changes of meteorological elements at a frontal wave
050.08.00.00	3.7	Pressure systems
050.08.01.00		Anticyclone
050.08.01.01		Anticyclones, types, general properties, cold and warm anticyclones, ridges and wedges, subsidence
050.08.02.00		Non frontal depressions
050.08.02.01		Thermal-, orographic-, polar depressions, troughs
050.09.00.00	3.8	Climatology
050.09.01.00		Climatic zones

050.09.01.01		General seasonal circulation in the troposphere
050.09.02.00		Typical weather situations in the mid-latitudes
050.09.02.01		Westerly situation
050.09.02.02		High pressure area
050.09.02.03		Flat pressure pattern
050.09.03.00		Local winds and associated weather
050.09.03.01		e.g. Foehn
050.10.00.00	3.9	Flight hazards
050.10.01.00		Icing
050.10.01.01		Conditions for ice accretion
050.10.01.02		Types of ice accretion
050.10.01.03		Hazards of ice accretion, avoidance
050.10.02.00		Turbulence
050.10.02.01		Effects on flight, avoidance
050.10.03.00		Wind shear
050.10.03.01		Definition of wind shear
050.10.03.02		Weather conditions for wind shear
050.10.03.03		Effects on flight, avoidance
050.10.04.00		Thunderstorms
050.10.04.01		Conditions for and process of development, forecast, location, type specification
050.10.04.02		Structure of thunderstorms, life history, squall lines, electricity in the atmosphere, static charges
050.10.04.03		Electrical discharges
050.10.04.04		Development and effects of downbursts
050.10.04.05		Thunderstorm avoidance
050.10.05.00		Inversions
050.10.05.01		Influence on aircraft performance
050.10.06.00		Hazards in mountainous areas
050.10.06.01		Influence of terrain on clouds and precipitation, frontal passage
050.10.06.02		Vertical movements, mountain waves, wind shear, turbulence, ice accretion
050.10.06.03		Development and effect of valley inversions
050.10.07.00		Visibility reducing phenomena
050.10.07.01		Reduction of visibility caused by precipitation and obscuration
050.10.07.02		Reduction of visibility caused by other phenomena
050.11.00.00	3.10	Meteorological information
050.11.01.00		Observation
050.11.01.01		Surface observations
050.11.01.02		Radiosonde observations
050.11.01.03		Satellite observations
050.11.01.04		Weather radar observations
050.11.01.05		Aircraft observations and reporting
050.11.02.00		Weather charts
050.11.02.01		Significant weather charts
050.11.02.02		Surface charts
050.11.03.00		Information for flight planning
050.11.03.01		Aviation weather messages

050.11.03.02		Meteorological broadcasts for aviation
050.11.03.03		Use of meteorological documents
050.11.03.04		Meteorological warnings
050.11.04.00		Meteorological services
050.11.04.01		World area forecast system and meteorological offices