Name: **Enrolment No:**	

UPES

End Semester Examination, May 2024

Course: Aviation Safety & Security — **Semester: IV**

Program: BBA AVM — **Time : 03 hrs.**

Course Code: TRAV 2018 — **Max. Marks: 100**

Instructions:

SECTION A

10Qx2M=20Marks

S. No.		Marks	CO
Q 1	Define "High Risk Cargo".	**2**	**CO1**
Q 2	Cargo and mail to be carried on a commercial aircraft are protected from unauthorized interference and fall under a) Standard 4.6.3 b) Standard 4.6.4 c) Standard 4.6.5 d) Standard 4.6.1	**2**	**CO1**
Q 3	What is "Secured Baggage"?	**2**	**CO1**
Q 4	Define "Layered Security".	**2**	**CO1**
Q 5	Identify the challenges faced by an airport during natural disasters.	**2**	**CO1**
Q 6	Annex 17 is divided into 5 chapters. One of them is _____ a) Financial Accounting b) Legal and Jurisdiction c) Accountabilities d) Preventive Measures	**2**	**CO1**
Q 7	What is the "HOT Protocol" (for unattended items)?	**2**	**CO1**
Q 8	What is the importance of a grid map?	**2**	**CO1**
Q 9	Define "Local Standby".	**2**	**CO1**
Q 10	How do airports manage hazardous materials (hazmat) transported via air cargo?	**2**	**CO1**
	SECTION B **4Qx5M= 20 Marks**		
Q 11	Examine various acts of "Unlawful Interference" in aviation.	**5**	**CO2**

Q 12	Illustrate the main features of the Mobile Command Post established during airport emergencies.	**5**	**CO2**
Q 13	Examine the significance of surveillance, patrols, and other physical controls at airports.	**5**	**CO2**
Q 14	Identify various types of airport emergencies.	**5**	**CO2**
	SECTION-C **3Qx10M=30 Marks**		
Q 15	Analyze different approaches to implementing Annex 17 standards.	**10**	**CO3**
Q 16	Analyze the three basic components in the TEM model from the perspective of the flight crew.	**10**	**CO3**
Q 17	Analyze the influence of digitization on safety within the aviation industry, including its implications for enhancing safety protocols, operational efficiency, and risk management practices. **OR** Analyze the multifaceted impact of advanced terminal security measures on enhancing safety, operational resilience, and passenger experience within the aviation sector.	**10**	**CO3**
	SECTION-D **2Qx15M= 30 Marks**		
Q 18	Airport emergencies are rare but potentially catastrophic; therefore, system preparedness is crucial. Airport emergency plans include the organization of emergency drills regularly, including full-scale exercises, to train and test the entire rescue organization. Imagine you oversee airport operations at XYZ airport. A full-scale airplane crash was simulated on the airport ground, activating the Airport emergency plan, and requiring the intervention of supplementary resources (ambulances, medical cars, and other emergency vehicles). Analyze how you will handle and execute the full-scale exercise.	**15**	**CO4**
Q 19	On 27th of December 1991, an aircraft of model MD-81 operated by Scandinavian Airlines System (SAS), flight SK 751 departed from Arlanda International Airport in Stockholm, Sweden, on a route to Copenhagen, Denmark. In a few minutes after the departure, both engines failed, and the emergency landing had to be made on a field. Unfortunately, it failed, and the aircraft was broken into three pieces on impact with the ground.	**15**	**CO4**

	The day before the accident SAS MD-81 plane arrived in Stockholm from Zurich in the late evening hours (around 22.00 h) and was parked at the gate overnight with temperatures of around +1 °C. There were left approximately 2550 kg of fuel in each wing tank. The next day the aircraft was scheduled to leave Stockholm for Copenhagen at 08.30 hours. On the following day, early morning, the temperature had dropped to −0 °C. During the parking time clear ice had formed on the upper side of the wings. Checking routines by the ground crew member did not detect this phenomenon. The aircraft was fueled with 1400 kg of fuel and de-icing procedure started immediately before take-off. After de-icing the mechanic didn't check whether there was any clear ice on the upper side of the wings since he had previously found none. The required preparation was completed, and the aircraft took off at 08.47 hours from Runway 08. Already after 5 seconds the captain could hear a humming noise. After 25 seconds (at 1124 ft height) the right engine started to surge. Surging occurs when the compressor is no longer able to compress the incoming air to the pressure obtained in the engine's combustion section and this results in violent air shots in the opposite flow direction. The captain throttled back on the surging engine somewhat, but the surges continued until the engine stopped delivering thrust after 76 s of flight. When the flight had lasted 65 seconds the left engine also started to surge, which the pilots did not notice before this engine also lost thrust. This happened two seconds after the right engine had failed. When both engines had failed the crew prepared for an emergency landing. When the aircraft was entirely out of the cloud at a height of 300 to 250 m, a field in the direction of flight was chosen for an emergency landing. During the approach, the aircraft collided with trees, and a major part of the right-wing was torn off. The tail of the aircraft struck the ground first and after the impact, the aircraft slid along the ground for 110 m before stopping. The fuselage was broken into three pieces and no fire broke out. All 129 people on board survived and most were without physical injury. **Conduct a root-cause analysis and recommend preventive measures.**		