Name: **Enrolment No:**	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2022

Course: Aerodrome Design and Operations **Semester:III**
Program:MBA AVM **Time : 03 hrs.**
Course Code: TRAV 8002 **Max. Marks: 100**

Instructions:

SECTION A
10Qx2M=20Marks

S. No.		Marks	CO
Q 1	Explain the methodology to calculate aerodrome reference temperature? Give an example.	**2**	**CO1**
Q 2	a) The length and slope of second/middle section of approach surface for precision approach runway CAT II/III and runway code number 3 and 4 are _____m and _____% respectively. b) Describe the circumstances under which RWY threshold may be displaced.	**2**	**CO1**
Q 3	At an intersection of precision approach runway and a non-precision approach runway, the markings of …… runway shall be displayed. a) precision approach runway b) non-instrument runway c) special intersection marking d) none of the above	**2**	**CO1**
Q 4	Explain the five items which constitute description of strength of pavement.	**2**	**CO1**
Q 5	Define Stopway.	**2**	**CO1**
Q 6	Describe which color combinations can be used for wind direction indicator for adequate conspicuity.	**2**	**CO1**
Q 7	On a parallel runway the runway designation marking consists of …….. and …… a) three digit number , zero b) two digit number , a sign c) one digit number, a letter d) two digit number, a letter	**2**	**CO1**
Q 8	Differentiate between CAT II and CAT III.	**2**	**CO1**

Q 9	Define Runway turn pad.	**2**	**CO1**
Q 10	Describe the total number of obstacle limitation surfaces that have been enumerated in Annex 14.	**2**	**CO1**
	SECTION B **4Qx5M= 20 Marks**		
Q 11	A passenger terminal of 35 m height needs to be constructed and is going to fall only in transitional surface of associated precision approach Cat II runway which is 60 m wide. Calculate its minimum distance from the centre line of runway.	**5**	**CO2**
Q 12	Explain the type of emergencies that may occur at any airport.	**5**	**CO2**
Q 13	Illustrate the various type of fire extinguishing agent used at aerodromes.	**5**	**CO2**
Q 14	Describe the operational objectives of ARFF.	**5**	**CO2**
	SECTION-C **3Qx10M=30 Marks**		
Q 15	Analyze the PAPI lighting system and Cat-1 Approach lighting system with the help of diagrams.	**10**	**CO3**
Q 16	Analyze the aerodrome emergency planning process with relevant examples.	**10**	**CO3**
Q 17	Calculate declared distances for both runway orientations with following characteristics: Serviceable length of runway 08/26—3965 m RWY 08--- a) Threshold displaced by 410 m because of obstruction in approach surface. b) Length of stopway—225 m c) Length of clearway—330 m RWY 26— a) Threshold displaced by 222 m because of obstruction in approach surface. b) Length of stopway—432 m c) Length of clearway--NIL	**10**	**CO3**
	SECTION-D **2Qx15M= 30 Marks**		
Q 18	Draw a runway sketch and show **any four** of the following markings with respect to code No.4 RWY of 60m width and label them with distances. a) Runway designation marking b) Threshold marking c) Runway center line marking d) Touchdown zone marking e) Aiming point marking.	**15**	**CO4**
Q 19	Bird Strike is common and can be a significant threat to aircraft safety. For smaller aircraft, significant damage may be caused to the aircraft		

	structure and all aircraft, especially jet engine ones, are vulnerable to the loss of thrust which can follow the ingestion of birds into engine air intakes. This has resulted in a number of fatal accidents. Analyze some of the contributory factors responsible for bird strike and suggest possible solutions.	**15**	**CO4**