Name: Enrolment No:	UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, May 2020

Programme Name: B.Tech- ASEA **Semester : VIII**
Course Name : Navigation and Guidance **Time : 03 hrs**
Course Code : AVEG 451 **Max. Marks : 100**
Nos. of page(s) : 02
Instructions:

SECTION A
All the questions in this section are compulsory

S. No.		Marks	
Q 1	In INS as well as in satellite based navigation system, precise knowledge of the shape of earth as well as the gravitational acceleration is necessary. True or False?	**5**	
Q 2	If the number of satellites observed is four, the size of H matrix is ____.	**5**	
Q 3	a. The Decca system operates in LF bend between ____ and ____ frequency. b. The DME interrogator operates in the band between _____ and _____ frequency. c. The localizer operates in the VHF band between _____ and _____ frequency d. The LORAN system employs three basic repetition rates of ____ Hz, ____ Hz and _____ Hz.	**5**	
Q 4	The essential elements in inertial navigation system are _____ and _____	**5**	
Q 5	The realistic value may lie between ____ and _____, and in the worst case it cannot exceed _____.	**5**	
Q 6	The orbit inclination of GLONASS is _____.	**5**	

SECTION B
Answer all the questions in this section are compulsory

Q 7	A pilot descending along the glide path finds the "fly-up" indication, when he flies up, the needle goes further up. What interpretation should be put on this?	**10**	
Q 8	The receiving and transmitting frequencies of interrogator and transponder of DME are different explain why?	**10**	
Q 9	Explain the Doppler principle used in Missile guidance and Navigation	**10**	
Q 10	Discuss the various factors affecting the accuracy of position determination by the Navstar GPS	**10**	

SECTION-C Answer any two			
Q 12	Explain in detail about Navstar Recievers and illustrate major functions of receiver sub assemblies. **Or** Explain in detail about the data message received in GPS navigation message.	**20**	