Name:

Enrolment No:

UPES

End Semester Examination, December 2023

Course: Introduction to Geophysics **Semester: V**

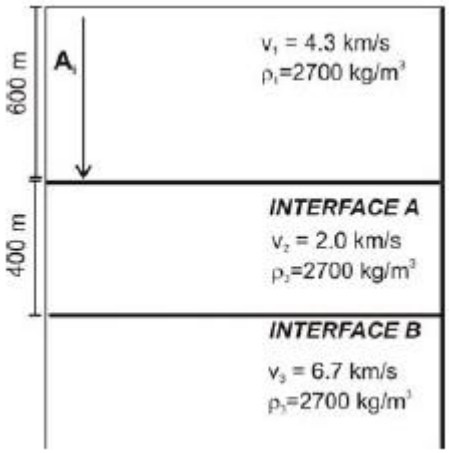
Program: B.Sc. Geology (Hon) **Time : 03 hrs.**

Course Code: PEGS3042 **Max. Marks: 100**

Instructions: Answer all questions. However, there is internal choice in Q9 and Q11

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Describe dipole-dipole resistivity method	**4**	**CO1**
Q 2	Define 'H type' and 'Q type' three layer master curves	**4**	**CO1**
Q 3	List out the marine seismic source survey devices	**4**	**CO1**
Q 4	Explain 3C and VSP seismic survey	**4**	**CO2**
Q 5	List out the various magnetometers with their accuracy for magnetic survey	**4**	**CO1**
	SECTION B **(4Qx10M= 40 Marks)**		
Q 6	What is weathering correction in seismic survey? The bedrock has a velocity of 3000 m/s and there is a 50 m thick weathered layer at the surface with a velocity of 1000 m/s. What is the effect on the arrival time of the seismic waves?	**10**	**CO4**
Q 7	Derive a resistivity formula for Schlumberger and dipole-dipole electrical resistivity survey	**10**	**CO2**
Q 8	Develop an integrated geophysical approach for subsurface resource exploration	**10**	**CO3**
Q 9	Explain the different types of corrections required in gravity data measurement **OR** Explain the peter slope and half width method of estimation depth of subsurface bed using magnetic method	**10**	**CO2**
	SECTION-C **(2Qx20M=40 Marks)**		
Q 10	Evaluate the application of electrical resistivity survey method in groundwater exploration with representative resistivity curve	**20**	**CO3**

Q 11	Evaluate NMO correction. Explain the steps of correcting migration of seismic signal in dipping bed. **OR** Calculate the amplitude and reflection coefficient of first three arrivals of signal from given figure. Thickness of upper layer is 600m and below one is 400m.  	**20**	**CO4**