Name: Enrolment No:	UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Supplementary Examination, December 2023

Course Name: Geological & Geophysical Methods of Exploration **Semester: III**
Programme Name: B. Tech APE-U **Time: 03 hrs**
Course Code: PEGS2035 **Max. Marks: 100**

SECTION A (30 M)

1. **Each question will carry 5 Marks**
2. **Instruction: Attempt all questions**

S.No.	**Questions**	**Marks**	**CO**
Q 1	Define the term porosity and permeability	**05**	**CO1**
Q 2	List out the well logging methods for porosity measurements	**05**	**CO2**
Q 3	What is magnetic anomaly?	**05**	**CO2**
Q 4	What is role of magnetic method in hydrocarbon exploration?	**05**	**CO3**
Q 5	Write True/ False i) NMO stands for Normal Move Out **(T/F)** ii) P -wave velocity is proportional to porosity of formation **(T/F)** iii) Poisson's ratio is the ratio of longitudinal to tangential strain **(T/F)** iv) In AVO analysis, amplitude is independent to Poisson's ratio **(T/F)** v) Acoustic impedance depends on density and velocity of formation **(T/F)**	**05 (5x1)**	**CO3**

SCETION B (50 M)

1. **Each question will carry 10 Marks**
2. **Instruction: Write short note**

Q 6	Explain the process of carrying static and velocity corrections in seismic survey	**10**	**CO4**
Q 7	Explain about different types of gravity corrections in field measurements	**10**	**CO4**
Q 8	Describe in detail the procedure of geological mapping in a region	**10**	**CO3**
Q 9	Illustrate secondary migration and accumulation of hydrocarbons in a system	**10**	**CO1**
Q 10	Describe the general scheme of petroleum formation. **OR** Evaluate the steps for seismic data processing	**10**	**CO3**

Section C (20 Marks)

1. **Each question will carry 25 Marks**

2. Instruction: Write long answer			
Q 11	Give an overview of Geophysical methods in Petroleum Engineering. Evaluate the various applications of geophysical methods in Hydrocarbon exploration **OR** Explain: a) Effect on porosity of grain size under Unconsolidated sediments vs consolidated sediments condition. b) For clay-free sands, the reduction in porosity with increasing sorting coefficient is greater for coarse sand than for fine sand.	**25** **25**	**CO5**