Name: **Enrolment No:**	

UPES

End Semester Examination, May 2025

Course: Formation Evaluation & Well Logging **Semester: VI**

Program: Btech APE-UP **Time : 03 hrs.**

Course Code: PEAU 3020 **Max. Marks: 100**

Instructions: All questions are mandatory.

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q1	Enumerate various usage of wireline logs	**4**	**CO2**
Q 2	Mention various parts of a log	**4**	**CO2**
Q 3	List out various types of well logs.	**4**	**CO1**
Q 4	List out at least 5 different wireline logging techniques	**4**	**CO1**
Q 5	Explain various characteristics of a wireline logging tool.	**4**	**CO2**
	SECTION B **(4Qx10M= 40 Marks)**		
Q 6	Explain the importance and application of temperature logging and the process of generating the Horner plot.	**10**	**CO3**
Q 7	Define the sand and shale line in the gamma ray logging. Also, explain the effect of barite, KCL and borehole quality mud on the total gamma ray.	**10**	**CO2**
Q 8	Explain with the help of a neat and clean diagram pair photo-electric absorption, Compton scattering and pair production. Also define various types of radioactivity logs.	**10**	**CO3**
Q 9	Explain with the help of a neat and clean diagram the mud invasion profile for both water and oil-bearing formation for WBM and OBM.	**10**	**CO3**
	SECTION-C **(2Qx20M=40 Marks)**		
Q 10	In the context of interpreting Formation Density Compensation (FDC) log data, explain how fluid density, the presence of gas, oil, and shale influence the log response. OR Emphasize the key differences in the **functioning and applications** of **spectral gamma ray** and **total gamma ray** logs. Additionally, explain how these logs help interpret **various lithologies** and **depositional environments**.	**20**	**CO5**
Q 11	Explain “Archie’s Law”, its importance, and the sources of data needed for the parameters used in the equation.	**20**	**CO4**