Name: Enrolment No:	

UPES
End Semester Examination, May 2024

Programme Name: M.Sc. Petroleum Geoscience
Semester : II
Course Name : Basin Analysis **Time : 3 hrs**
Course Code : PEGS 7033 **Marks : 100**
Nos. of page(s) : 1
Instructions : Internal choice is given in Q9 and Q11.

SECTION A (5Q x 4M= 20Marks)

SN		Marks	CO
Q1	Define the principal factors of basin classification.	4	**CO1**
Q2	Describe the role of micropaleontology in basin analysis.	4	**CO1**
Q3	Describe the significance of structural analysis in basin modeling.	4	**CO2**
Q4	Explain the key methods used to interpret basin history and dynamics.	4	**CO2**
Q5	Explain seismic facies parameters used in the characterization of subsurface geology.	4	**CO1**
SECTION B (4Q x 10M= 40Marks)			
Q6	Illustrate the significance of Walther's Law in basin studies. How does it contribute to our understanding of sedimentary basin evolution?	5+5	**CO1**
Q7	Describe any five advantages of basin modeling. Illustrate a flowchart detailing the geological and geophysical play assessment process.	5+5	**CO3**
Q8	Illustrate the theory of Isostasy and provide explanatory examples.	10	**CO4**
Q9	Explain the role of true vertical thickness (TVT) maps in PSA. **OR** Explain the role of true stratigraphic thickness (TST) maps in PSA.	10	**CO2**
SECTION C (2Q x 20M= 40Marks)			
Q10	Draw and explain, (a) The process of rift-to-passive-margin transition. Explain the geological and economic significance of basins associated with divergent margins. (b) The formation mechanism of Transtensional and Transpressional type basins. (c) Development of Forearc and Backarc basins.	8+6+6	**CO4**
Q11	Explain various stages of the Wilson cycle in detail. How does it explain the formation and breakup of supercontinents? Draw accurately labeled diagrams and provide relevant examples. **OR** Describe the principles and applications of the back-stripping technique in basin modeling. Draw and explain its role in paleogeometries assessment of sedimentary basin.	10+10	**CO3**

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