Name: Enrolment No:	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2019

Course: Sedimentology **Semester: IV**
Program: B.Tech GSE/ B.Tech GIE **Time 03 hrs.**
Course Code: PEGS 2005 **Max. Marks: 100**
Instructions: Draw appropriate diagram where required.

SECTION A

S. No.		Marks	CO
Q 1	Discuss the Biogenic sedimentary structures and their significance.	**5**	**CO1**
Q 2	Explain the important factors, which controls to sandstone Diagenesis	**5**	**CO2**
Q 3	Differentiate Eustatic and Relative sea level changes and their role in sequence stratigraphy.	**5**	**CO5**
Q 4	**True or False-** a) In Dolomitization process, the Iron ions are replaced by calcium, b) Effective porosity refers to total pore or void space in the rock, c) Aeolian origin sediments are very well-shorted, d) Chalk is a clastic sedimentary rock, e) Grain size and shape play an important role in depositional environment prediction	**5**	**CO1**

SECTION B

Q 5	Describe the porosity in sedimentary rock. Explain any five types of carbonate porosities supported by appropriate figures.	**10**	**CO3**
Q 6	Explain the followings - Transitional depositional environment and associated geological features. - The development process of Bouma sequence (A-E) and draw a neat diagram.	**5+5**	**CO4**
Q 7	Illustrate the definitions of the followings and draw appropriate diagrams- **(Any Five)** a) Trough cross bedding b) Fining upward sequence	**10**	**CO2**

	c) Coarsening upward sequence d) Wave ripple e) Seismic reflection f) Lithification		
Q 8	Give detail classifications of Limestone rocks proposed by Dunham.	**10**	**CO3**
	OR		
	Illustrate detailed classification of Rudaceous rocks supported by appropriate diagrams.	**4+6**	**CO3**
	SECTION-C		
Q 9	a) Illustrate in detail about six important Geological elements of Petroleum System characterization. b) Demonstrate the method of Risk matrix preparation, GCF calculation and prospect ranking.	**10+10**	**CO6**
Q10	a) Difference between sequence stratigraphy and the Lithostratigraphy. b) Determine how sea level changes/ variable sediment supply affects the stacking patterns of different parasequences. c) Draw appropriate diagram to support your interpretation,	**5+10+5**	**CO5**
	OR		
	Sequence stratigraphy analysis- a) Analyze and draw a depositional sequence with one cycle of sea level change, annotated by system tracts and SB. b) Explain the variation in deposition patterns of different systems tracts (starting from falling stage to high stand systems). c) Draw appropriate diagram to support your interpretation,	**5+10+5**	**CO5**

SECOND SET OF PAPER

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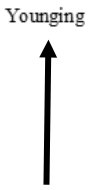
Programme Name: B.Tech_GSE/ B.Tech_GIE **Semester : IV**
Course Name : Sedimentology **Time : 03 hrs**
Course Code : PEGS 2005 **Max. Marks : 100**
Nos. of page(s) : 2
Instructions: Draw appropriate diagram where required.

SECTION A (20 marks)

S. No.		Marks	CO
Q 1	"A highly porous rock have to be highly permeable" – Does this statement holds true always?	**5**	**CO1**
Q 2	Write a short note on textural maturity of sediments.	**5**	**CO2**
Q 3	"Carbonate minerals are not expected below carbon compensation depth of ocean" Justify the statement.	**5**	**CO3**
Q 4	Define an essential depositional difference between a Meandering river and a Braided river set up.	**5**	**CO4**
	SECTION B (40 marks)		
Q 5	Give detail classifications of Limestone rocks proposed by Folk.	**10**	**CO3**
Q 6	Differentiate Eustatic and relative sea level changes and it's implications on depositional environment of the sediments.	**10**	**CO5**
Q 7	Illustrate how framework, matrix and cement can influence permeability of a clastic sedimentary rock.	**10**	**CO3**
Q 8	Establish Walther's law of correlation of facies and it's importance in geological interpretation of depositional environment.	**5+5**	**CO4**
	OR		
	Illustrate in detail about the morphological classification of delta.	**10**	**CO4**

SECTION C (40 marks)			
Q 9	Illustrate the followings- a) Organic and Inorganic theories of hydrocarbon origin, b) Mechanism of hydrocarbon Trap formation, Explain the Structural, Stratigraphic and Combined traps supported by appropriate figures.	**5+15**	**CO6**
Q 10	a) In a vertical sedimentary sequence, you are expecting following lithofacis. Sea ward dipping planer laminated sand beds Trough cross bedding in sand beds Hummocky cross bedding in sand beds with flesher bedding Bioturbated marine mud  What you can infer about the sedimentary environments laterally adjacent in geological past. b) In which sedimentary environment the following sedimentary structures are expected: (i) Climbing ripple; (ii) Hummocky cross stratification; (iii) Antidune. c) Write a short note on formation of flaser and lenticular bedding.	**10+5+ 5**	**CO5**
	OR		
	Sequence stratigraphy analysis- d) Examine and draw a depositional sequence with one cycle of sea level change, annotated by system tracts and SB. e) Illustrate the difference in deposition patterns of different systems tracts (starting from falling stage to high stand systems). f) Draw appropriate diagram to support your interpretation,	**5+10+ 5**	**CO5**