


Name			
Enrolment No.			
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES			
End Semester Examination, December 2021			
Programme Name: B. Tech GIE-V		Semester: V	
Course Name: Basin Analysis		Time : 03 hrs.	
Course Code: PEGS 3018P		Max. Marks : 100	
Nos of page(s): 01			
Instructions: All questions are Compulsory.			
SECTION A			
S.No.		Marks	CO
Q 1	Define Basin Analysis? Outline the major activities in basin analysis.	4	CO1
Q 2	Describe various types of Facies.	4	CO1
Q 3	Illustrate transitional depositional environments...	4	CO2
Q 4	Describe basin mapping techniques	4	CO2
Q 5	Explain basin modifying tectonics and typical trap types	4	CO3
SECTION B			
Q 6	a) Explain the different models of isostasy. b) A large area of continent consists of 30 km of crust with density 2.8 Mg/m ³ over 90 km of material with density 3.1 Mg/m ³ . The asthenosphere density is 3.2 Mg/m ³ . This region is covered with a 1.6 km thickness of ice of density 0.9 Mg/m ³ . The ice-covered region is assumed isostatic equilibrium. Then, the ice melts. By how much will the rock surface of the continent change when the new isostatic equilibrium is re-established?	4+6	CO1
Q 7	Describe sedimentary facies? Why is Facies analysis essential to a sedimentologist? Describe the characteristics of sedimentary facies in any two depositional settings.	5+5	CO2
Q 8	Define a Parasequence and System Tract. Illustrate with suitable diagram the Lowstand and Highstand system tracts OR Define Eustatic Cycles. Describe the types and major causes of various cycles.	10	CO3
Q 9	Explain in detail Tectonic Basin Classification. Describe characteristics and hydrocarbon potential of Rift basins.	10	CO3
SECTION C			
Q 10	a) Explain the major geological processes in basin modeling. b) Illustrate elements of basin model and their application in hydrocarbon exploration	20	CO4
Q 11	Describe the approach to carry out Integrated Basin Analysis. How a sedimentary basin is evaluated for exploration of hydrocarbons prospects. OR Explain in detail the basis of classification of Indian Sedimentary basins. Analyse the hydrocarbon prospectivity of any two Indian basins.	20	CO4