Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, May 2021

Course: Basin Analysis

Program: B. Tech Geoscience Engineering [GSE]

Semester: VI

Time 03 hrs.

Course Code: PEGS 3018 Max. Marks: 100

SECTION A

- 1. Each Question will carry 5 Marks
- 2. Instruction: Complete the statement / Select the correct answer(s)
- 3. All Questions are compulsory.
- 4. Type the answers.

S. No.		Marks	CO
Q 1	Define Pull apart basin.	5	CO1
Q 2	i. Backacrch basin develop only in Transform plate margin. ii. Rift basin is related to strike slip deformation. iii. Base Level represent only global reference surface. iv. Backtriping methods use for depositional history analysis of any sedimentary basin. v. Porosity has exponential relationship with depth.	5	CO2
Q 3	Write any Five components, which change the primary porosity.	5	CO3
Q 4	Fill in the Blanks-i. Name of two reservoir are	5	CO4
Q 5	Define Isostasy.	5	CO1
Q 6	Give the components of petroleum system.	5	CO2

SECTION B

- 1. Each question will carry 10 marks.
- 2. Instruction: Write short / brief notes.
- 3. Attempt all the Questions.
- 4. Scan and upload answers.

Q 7	Create the difference between Alluvial fan and Deep sea Deltaic depositional characteristics.	10	CO1
Q 8	Write a short notes on <u>any two:</u> i- Constructive Delta.	10	CO3

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	ii- Carbonate platforms.		
	iii- Relative sea level		
Q 9	An exploratory well has encountered a 500m thick shale horizon at a depth of 3 km. The total porosity of shale is measured as 30% at 3 km and 70% at the surface. Calculate the decompacted thickness of the unit?	10	CO4
Q 10	Describe all the components of integrated basin analysis.	10	CO3
Q 11	Discuss back stripping techniques for basin modeling.	10	CO3
2. Instru	Question carries 20 Marks. uction: Write long answer. and upload answer. Discuss the basin evolution mechanism under the three dimensional stress		COA
Q 11	environment. OR	20	CO4
	Large area of continent consists of 30 km of crust with density 2.8 Mg/m3 over 90 km of material with density 3.1 Mg/m³. The asthenosphere density is 3.2 Mg/m³. This region is covered with a 1.6 km thicness of ice of density 0.9 Mg/m³. The ice covered region is assumed to be isostatic equilibrium. Then, the ice melts. By how much will the rock surface of the continent change when the new isostatic equilibrium is reestablished?	20	CO4