



FACULTY OF ENGINEERING
END OF SEMESTER EXAMINATIONS - APRIL 2025

PROGRAMME: BACHELOR OF PETROLEUM ENGINEERING

YEAR/SEM: YEAR 2/SEMESTER 2

COURSE CODE: PTE2251

NAME: ANALYSIS OF SEDIMENTARY BASINS

DATE: 2025-04-15

TIME: 9:00AM-12:00PM

INSTRUCTIONS TO CANDIDATES:

1. Read the instructions very carefully
2. The time allowed for this examination is STRICTLY three hours
3. Read each question carefully before you attempt and allocate your time equally between all the Sections
4. Write clearly and legibly. Illegible handwriting cannot be marked
5. Number the questions you have attempted
6. Use of appropriate workplace examples to illustrate your answers will earn you bonus marks
7. Any examination malpractice detected will lead to automatic disqualification.

DO NOT WRITE ANYTHING ON THE QUESTION PAPER

Section A Attempt any TWO Questions (40 Marks)

Question 1:

- a) (i) Briefly explain any four (4) reasons why the analysis of sedimentary basins knowledge is of importance to a Petroleum engineer
(8 marks)
- (ii) State the sources of crustal loads that can result into subsidence
(2 marks)
- b) Briefly explain what you understand by the following; (6 marks)
- (i) a basin
 - (ii) sedimentary basin
 - (iii) basin analysis
- c) What is a graben and how is it formed? (4 marks)

Question 2:

- a) Using an example, explain a Failed Rift and how it is formed
(5 marks)
- b) Define the following and then explain in terms of their formation;
- (i) Backarc basin (5 marks)
 - (ii) Trench (5 marks)
 - (iii) Strike-slip basins (5 marks)

Question 3:

- a) Explain the following mechanisms of basin formation.
- (i) Isostasy (5 marks)
 - (ii) Crustal loading. (5 marks)
- b) (i) What is a cratonic basin and a depositional environment? (4 marks)
- (ii) List any three (3) characteristics of intra-Cratonic basins (3 marks)

c) State any two **(2)** examples of such environment in **b(i)** above that can be found within the;

(i) Continental areas **(1 mark)**

(ii) Transition zone **(1 mark)**

(iii) Marine areas **(1 mark)**

Question 4:

a) Explain any;

(i) two **(2)** types of sediments **(4 marks)**

(ii) four **(4)** ways in which the above sediments can be transported in rivers and lakes **(8 marks)**

b) (i) List any four characteristics that can help you to recognize a mature sediment **(4 marks)**

(ii) Briefly explain why the knowledge of particle/sediment rounding and sorting is important. **(4 marks)**

Section B Attempt any THREE Questions (60 Marks)

Question 1:

“The present is the key to the past”. Discuss the clues that you can use to interpret the ancient depositional environments. **(20 marks)**

Question 2:

Write notes on the following depositional environments.

a) Fluvial **(10 marks)**

b) Shallow marine **(10 marks)**

Question 3:

Briefly explain the steps that you can take to interpret the stratigraphy from a seismic section
(20 marks)

Question 4:

Using illustrations, explain a complete depositional sequence
(20 marks)

-----Good Luck-----