PARUL UNIVERSITY
FACULTY OF PETROLEUM ENGINEERING
M.Sc., Summer, 2022-2023 Examination

Semester: 4	Date: 24-03-2023
Subject Code: 11214254	Time: 2:00pm to 4:30pm
Subject Name: Pipeline Engineering	Total Marks: 60

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1. A) Essay type/ Brief note (4x2) (Each of 04 marks)   **(08)**
    (a) Explain the Rail Transport and also write the advantage of disadvantages of Rail Transport?
    (b) The water flow rate is 320 m³/hour and water velocity is 1.5 m/sec. Calculate the diameter of pipeline (in inches)?

Q.1. B) Answer the following questions (Any two)
    (a) Short note/ Brief note (2x2)/ Schematically label the figures (2x2) (Each of 02 marks)   **(04)**
        1. Write down all five steps of the Project development pipeline process?
        2. Write down the procedure for launching pigs?
    (b) The slip velocity of for a gas-liquid flow in a vertical production is 0.10 m/sec. The superficial   **(04)**
    velocity of each phases is 0.10 m/sec. Calculate the fractional Hold-up of the liquid phase (round off to two decimal places).
    (c) Write down the name of all 11 ASME codes with their uses?   **(04)**

Q.2. A) Answer the following questions.
    (a) Short note/ Brief note (2x2)/ Fill in the blanks. (Each of 02 marks)   **(04)**
        1. Write down the applications of the Gel pigs?
        2. What are the uses of the in-line inspection tools?
    (b) Explain the galvanic corrosion with neat-diagram?   **(04)**

Q.2. B) Answer the following questions (Any two)
    (a) Short note/ Multiple choice questions.   (Each of 01 marks)   **(03)**
        1. Define Trunk lines?
        2. What do you mean by Pipeline Codes?
        3. What do you mean by Regular Station?
    (b) Explain the electrolytic corrosion?   **(03)**
    (d) Write down the application of pigging?   **(03)**

Q.3. A) Essay type/ Brief note (4x2) (Each of 04 marks)   **(08)**
    (a) Explain the Oil and Gas oil filed life cycle?
    (b) A section of pipeline system is to handle 300 MMSCFD gas flow. The pipeline inlet and outlet pressure are 1500 psia and 1250 psia respectively. The following data are given: standard pressure and temperature are 14.73 psia and 60 °F, Average temperature is 170 °F, compressibility is 0.74, specific gravity of gas is 0.84 and length of pipeline is 5.2 miles. Calculate diameter of pipeline (in inches) by using modified panhandle equation?

Q.3. B) Answer the following questions (Any two)
    (a) Short note/ Brief note (2x2)/ Schematically label the figures (2x2) (Each of 02 marks)   **(04)**
        1. Explain the reserves types?
        2. Define the abonnement phase of Oil and gas field life cycle?
    (b) Explain the all three types of fluids?   **(04)**
    (c) Explain the Horizontal Multiphase flow regimes?   **(04)**

Q.4. A) Answer the following questions.

    (a) Short note/ Brief note (2x2)/ Fill in the blanks. (Each of 02 marks) **(04)**
       1. Define Floating, production, storage and Offloading (FPSO)?
       2. What are the common Features of Pipeline Codes and Standards?
    (b) Explain the pigging system with the diagram of pig launcher for gas pipeline? **(04)**

Q.4. B) Answer the following questions (Any two)

    (a) Short note/ Multiple choice questions.   (Each of 01 marks) **(03)**
       1. What is the abbreviation of ANSI?
       2. What is the use of code B31.8?
       3. Define Distribution pipeline?
    (b) What are the main benefits of the Offshore construction? **(03)**
    (c) A pipe 1.2 m diameter and 9000 m long transmit water of velocity of 1.25 m/sec. The moody friction coefficient of pipe is 0.028. Calculate the head loss due to friction? **(03)**