


| Name:  |   |  |     |
|--|---|--|-----|
| Enrolment No:  |   |  |     |
| <b>UPES</b><br><b>End Semester Examination, December 2023</b>  |   |  |     |
| <b>Course: Well Servicing and Workover Operations</b><br><b>Semester: VII</b><br><b>Program: APE UP</b><br><b>Course Code: PEAU 4019</b> |   | <b>Time : 03 hrs.</b><br><b>Max. Marks: 100</b>                                    |     |
| <b>Instructions: All questions are compulsory. There is no overall choice.</b><br><b>Draw the diagram wherever required.</b>             |   |  |     |
| <b>SECTION A</b><br><b>(5Qx4M=20Marks)</b>   |   |  |     |
| S. No.   |   | Marks  | CO  |
| 1  | Enumerate the reasons for increase in water cut.  | 4  | CO1 |
| 2  | List the reasons of formation damage.   | 4  | CO1 |
| 3  | Describe wax appearance temperature.  | 4  | CO2 |
| 4  | Discuss the most widely used accelerators and retarders in cementing  | 4  | CO3 |
| 5  | Explain cement bond log and variable density log.   | 4  | CO3 |
| <b>SECTION B</b><br><b>(4Qx10M= 40 Marks)</b>  |   |  |     |
| 6  | Discuss different wax removal and prevention techniques with the help of appropriate diagram.   | 10   | CO2 |
| 7  | Describe different ways to prevent sand production in a vertical oil well.  | 10   | CO2 |
| 8  | Examine the different scale removal techniques.   | 10   | CO2 |
| 9  | Discuss the reasons for limited productivity of the well.   | 10   | CO1 |
| <b>SECTION-C</b><br><b>(2Qx20M=40 Marks)</b>   |   |  |     |
| 10   | <p>A high temperature high pressure well has 3 sandstone pay zones located at 800ft(A), 1020ft(B) and 2010ft(C). The water cut suddenly increased from 35% to 60%. After the well diagnosis was done it was determined that the major fraction of water is coming from section B. As a petroleum engineer evaluate the situation and discuss the next step to be followed for rectifying the situation.</p> <p style="text-align: center;">OR</p> | 20   | CO3 |

|    |   |              |            |
|----|---|--------------|------------|
|    | Differentiate between different types of squeeze cementing techniques used for plugging of a perforation.   |              |            |
| 11 | Diagrammatically explain the different wireline components used for workover operations in an oil well.<br>Discuss the wireline used for perforating the pay zone and the reasons for its selection | <b>10+10</b> | <b>CO4</b> |