



**PRESIDENCY UNIVERSITY
BENGALURU**

SCHOOL OF ENGINEERING

MAKEUP EXAMINATION – JAN 2023

Course Code: PET317

Course Name: Advance Drilling Engineering

Program : B.Tech

Date: 28-JAN-2023

Time: 9.30 AM to 12.30 PM

Max Marks: 100

Weightage: 50%

Instructions:

- (i) Read the all questions carefully and answer accordingly.
- (ii) Question paper consist of three parts, PART A, B & C
- (iii) All questions are mandatory

Part A [Memory Recall Questions]

Answer the Question. Each question carries thirty marks.

(1Qx 30M= 30M)

1. Answer the following questions

- (a) What is KOP and BUS?
- (b) Write is the relationship between ROTOR and STATOR in PDM.
- (c) Mention the function of Bent Sub.
- (d) Write the working of Acid Bottle survey tool.
- (e) Why stabilizers are important for BHA assembly used for Directional Drilling?
- (f) What is "Slick BHA"?
- (g) List out two functions of "REAMER".
- (h) What material used in NMDC drill pipe and Why?
- (i) Write the main component of Positive Displacement Motor.
- (j) Mention any two reliable directional survey calculation method.
- (k) State the reasons for dog leg severity.
- (l) Which depth is used to measure Hydrostatic head in a directional well?
- (m) Draw an East and West declination angle.
- (o) What is build up angle?

(C.O.No. 1, 2, 3, 4) [Knowledge]

Part B [Thought Provoking Questions]

Answer all the Questions. Each question carries TEN marks.

(4Qx10M=40M)

2. "There are four basic well profiles considered while planning a directional well"-Discuss with all types with appropriate diagrams. (C.O.No. 2) [Comprehension]

3. "Directional drilling (or slant drilling) is the practice of drilling non-vertical bores. It can be broken down into four main groups: oilfield directional drilling, utility installation directional drilling, directional boring (horizontal directional drilling - HDD), and surface in seam (SIS), which horizontally intersects a vertical bore target to extract coal bed methane."-Discuss the reasons for doing directional drilling. (C.O.No. 3)[Comprehension]

4. Write a short note on the following: (a) MWD (b) LWD (C.O.No. 1)[Comprehension]

5. Elaborate Directional drilling problems and their solutions. (C.O.No. 4) [Comprehension]

Part C [Problem Solving Questions]

Answer all the Questions. Each question carries THIRTY marks.

(1Qx30M=30M)

6. Give a briefly account on directional drilling tools and deflection methods.

(C.O.No. 4) [Application]