Name: Enrolment No:	UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, Dec 2020

Course: Offshore Drilling and Production Operations **Semester: VII**
Program: B.Tech-APEUP **Time 03 hrs.**
Course Code: PEAU 4001 **Max. Marks: 100**

Instructions: All questions are compulsory. There is an internal choice in last question.

SECTION A
Attempt all questions. Each question carries 5 marks.

S. No.		Marks	CO
Q 1	Name three types of drilling rigs used in offshore environment along with maximum water depth in which they can operate.	5	CO1
Q 2	Name 4 types of offshore production platforms. Name the production unit suitable for marginal basins?	5	CO2
Q 3	List five functions of ROV along with one line description of each function.	5	CO3
Q 4	List and describe in brief five types of health hazards associated with working in an offshore platform.	5	CO3
Q5	Name five types of forces acting on a floating vessel, along with their axes of application?	5	CO2
Q 6	List five types of gas peaks obtained during oil and gas drilling. Write a brief note about reason of production of each type of peak.	5	CO3
SECTION B **Attempt all questions. Each question carries 10 marks.**			
Q 7	Describe the role of heave compensator and riser tensioner during drilling operation done from a semi-submersible rig?	10	CO4
Q 8	Describe in brief features and characteristics of weather fronts? List the difference between cold front and warm front.	10	CO2
Q9	Describe well completion. Explain the role of Christmas tree in oil and production?	10	CO5
Q10	List and explain the advantages of dynamic positioning system over conventional mooring system?	10	CO3
Q 11	Calculate the lag time in a 8 ½ ” well bore of 10000 ft length with a 5” drill pipe run to the bottom of hole. One triplex pump pumping mud into well has liner length of 12” and liner diameter of 6” and 95% efficiency. The pump is running at constant rate of 60 strokes per minute.	10	CO3

SECTION-C			
Q12	Describe in detail safety measures required while drilling a well in a known H2S producing oil field. Describe the consequences of exposure of H2S to personnel and equipment. **OR** Describe the sequence of operations in drilling a well from drill ship? Describe in in detail challenges in drilling a deep water well in offshore environment?	**20**	**CO5**