

Total No. of Questions : 12]

SEAT No. :

P2134

[Total No. of Pages : 2

[5254] -527

B.E. (Civil)

Subsea Engineering

(2012 Pattern) (Semester - II) (Open Elective)

Time : 2½ Hours]

[Max. Marks :70

Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10
- 2) Neat sketches must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Use of non - programmable calculator.
- 5) Assume suitable data if necessary.

Q1) Explain engineering involved in oil and gas extraction industry and state its international scenario. [10]

OR

Q2) a) Sketch engineering components of subsea establishment for oil exploration. [4]

b) Explain the over view of oil and gas industry. [6]

Q3) a) Explain role of Civil Engineer in subsea oil establishment and exploration process. [6]

b) Differentiate technical aspects of shallow and deep water oil exploration.[6]

OR

Q4) a) Explain relation between major components of subsea production system with the help of suitable flow chart. [6]

b) State hoe shallow water and deep water oil exploration influences subsea production system. [6]

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- Q5)** a) Write the purpose/function of each subsea system in oil exploration process. [7]
b) Explain role of unmanned and manned intervention method for subsea oil exploration. [7]

OR

- Q6)** a) Explain forces acting on deep sea, subsea pipe line system. [7]
b) Explain how electrical, acoustic, hydraulic systems work for application in subsea engineering. [7]

- Q7)** a) Explain with suitable illustration economic decision in field development. [8]
b) Explain civil engineering risks at field development. [9]

OR

- Q8)** a) Classify foundations required at subsea establishments. [9]
b) State typical load considerations for subsea foundation design. [8]

- Q9)** a) Sketch typical off shore trussed structures showing typical design loads under consideration. [9]
b) Discuss typical design options available for deep water pipe/riser design. [8]

OR

- Q10)** a) Water pipe of 60 mm diameter contains oil pressure head 100 mm. Find the thickness of metal required if weight of oil is 8500 N/m^3 , when $D/t \geq 31$ and $D/t \leq 30$. Density of sea water 10300 N/m^3 and permissible stress in metal is 270 Mpa. [9]
b) Explain the design parameters of manifold. [8]

