

Total No. of Questions :10]

SEAT No. :

[Total No. of Pages : 2

**P3667**

**[4959]-1027**

**B.E. (Civil)**

**SUBSEA ENGINEERING**

**(2012 Course) (Open Elective) (Elective-IV) (Semester-II)**

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) *Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10.*
- 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) a)** Sketch typical subsea oil exploration set up showing important components. **[4]**

b) Explain the over view of oil and gas industry with its international scenario. **[6]**

OR

**Q2) a)** Draw neat diagram showing components of subsea establishment for oil exploration. **[4]**

b) Explain the over view of oil and gas industry with its international scenario. **[6]**

**Q3) a)** Explain technological challenges as Civil Engineer for sub sea oil exploration. **[6]**

b) Differentiate between shallow and deep water oil exploration with respect to geography, Potential, technological challenges in exploration, route for development of oil exploration. **[4]**

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. **[4]**

**P.T.O.**

- Q5)** a) Write the purpose/function of each subsea system in oil exploration process. [8]  
b) Explain role of unmanned and manned intervention method for subsea oil exploration. [8]

OR

- Q6)** a) Explain the design features of subsea pipe line system. [8]  
b) Explain how electrical, acoustic, hydraulic systems work for application in subsea engineering. [8]

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

OR

- Q8)** a) Explain types of foundations at subsea establishments. [9]  
b) Explain 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 60mm diameter contains oil pressure head 100mm. Find the thickness of metal required if weight of oil is  $8500 \text{ N/m}^3$ , when  $D/t \geq 31$  and  $D/t \leq 30$ . Density of sea water  $10300 \text{ N/m}^3$  and permissible stress in metal is 250 MPa. [9]  
b) Write short note on design parameters of manifold. [8]

