

Roll No

MVSE-302(C)

M.E/M.Tech., III Semester

Examination, June 2016

Design of Offshore Structures (Elective - II)

Time : Three Hours

Maximum Marks : 70

- Note :** i) Attempt any five questions.
ii) All questions carry equal marks.
iii) Assume missing data suitably.

1. Discuss various loads and structural forms of different types of offshore structures.
2. a) Discuss elements of single degree of freedom system subjected to forced vibration.
b) A column of the water tank is 100m high and is made of R.C.C. with a tabular cross section of inner diameter 2.5m and 3.5m outer diameter. The tank weighs 10,000 kN. Find the natural frequency of transverse vibration of the water tank. Assume $E_C = 17 \text{ kN/mm}^2$.
3. a) Explain how the analysis of transient force is carried out.
b) Discuss equivalent damping for nonlinear systems.
4. a) Discuss Eigen value problem in detail.
b) Discuss dynamics of multi D.O.F. systems.

5. a) Discuss Fourier series method for S.D.I.
b) Explain vibrations of beams.
6. a) Discuss the effect of size and shape of structure on wind load.
b) Discuss the following :
 - i) Aerodynamic admittance function
 - ii) Spectral response due to wind
7. a) Explain the behaviour of concrete gravity plat form.
b) Discuss short and long term statistics of wind.
8. Write short notes on the following :
 - a) Iterative methods
 - b) Wave loads by Morison's equation
 - c) Use of approximate methods for fixed structures
 - d) Vibration of cone
