

Total No. of Questions :8]

SEAT No. :

P4505

[Total No. of Pages : 2

[5355] - 55

M.E. (WREE) (Civil)

**ENVIRONMENTAL HYDRAULIC & ENVIRONMENTAL
STRUCTURES**

(2013 Pattern) (Semester - II) (501086)

Time : 3 Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) Answer any five questions.*
- 2) Electronic pocket calculator is allowed, Assume data if necessary.*

Q1) What are the functions of valve? Explain in brief different types of valves according to their functions. **[10]**

Q2) a) Write a short note on actuating force applied manually, hydraulically & pneumatically. **[6]**

b) Explain the main parts of centrifugal pump along with a suitable diagram. **[4]**

Q3) a) What is damping & explain any two following types of damping. **[6]**

- i)** Viscous damping
- ii)** Slip or interfacial damping
- iii)** Dry friction damping
- iv)** Solid damping

b) A single stage, single acting reciprocating has a bore of 200 mm & a stroke of 300 mm. It receives vapour refrigerant at 1 bar & delivers it at 5.5 bar. If the compression & expansion follows the law $PV^{1.3} = \text{constant}$ & the clearance volume is 5 percent of the stroke volume, determine

- i)** The power required to drive the compressor, if it runs at 500 r.p.m.
- ii)** The volumetric efficiency of the compressor. Work done by compressor is 1695 N.M. **[4]**

P.T.O.

- Q4)** a) Write a short note on operating characteristic curves of centrifugal pump. [4]
b) Write a short note on openings in pressure vessel. [6]
- Q5)** a) What is thick cylinder? When to use LAME's equation. [6]
b) What is fourier's law of heat conduction & fick's law of diffusion. [4]
- Q6)** a) Write a short note on i) Bimetallic strips ii) Thermistors [6]
b) Write a short note on LVDT. [4]
- Q7)** a) Enlist various characteristics of PTFE (teflon). [4]
b) Write a short note an membrane analysis in the design of circular tank with damed water & roof. [6]
- Q8)** Write a short note on design of foundation used in water retaining structures. Also explain effect of earth pressure & uplift consideration. [10]

