Printed Pages: 4 **NCH-015**

(Following Paper ID and Roll No. to be filled in your Answer Books)	
Paper ID : 151665	**Roll No.**

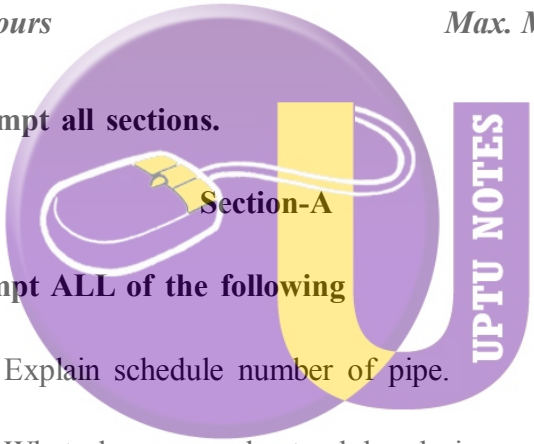
B.TECH.

Theory Examination (Semester-VI) 2015-16

PIPING DESIGN

Time : 3 Hours ***Max. Marks : 100***

Note: Attempt all sections.



Section-A

1. Attempt ALL of the following (2×10=20)

(a) Explain schedule number of pipe.

(b) What do you understand by design and working pressure of pipeline?

(c) Discuss the power transmission through pipes.

(d) Discuss the nominal Pipe thickness.

(e) Discuss the code, standards and specification of pipe.

(f) Write about the water hammering in piping.

(g) Write the Newtonian and non-Newtonian fluid.

(h) Discuss the difference between pipe and tube.

(i) Explain the bend in piping.

(j) Discuss equivalent pipe diameter and length.

Section-B

2. Attempt any FIVE of the following : (5×10=50)

(a) Explain the various types of fitting of piping networks.

(b) Give the classification of valves. Explain the plug valve also write its importance.

(c) A straight pipeline of 300 mm is to be laid to a near by town at a distance of 1 km. The average water requirement of the town is 500 m^3/ hr. Find out at what pressure pumping should take place. Given kinematic viscosity of water 1.006 m^2/s.(f= 0.027).

(d) What is the role of the flange? Discuss the classification of flange joints.

(e) A seamless pipe carries 2400 m^3 of steam per hour at a pressure of 1.4 N/mm^2. The velocity of flow is 30 m/s. Assume specific minimum yeld strength is 40 Mpa, find the inside diameter of the pipe and its wall thickness. If corrosion allowance = 3 mm.

(f) Explain the vibration in piping design. How you will prevent vibration in piping?

(g) What are the various pipe manufacturing processes. Explain seam welded pipe manufacture process.

(h) What do you understand by syphon. A syphon of diameter 200 mm connects two reservoirs having a difference in elevation of 15m. The total length of the syphon is 600 m and the summit is 4m above the water level in the upper reservoir. If the separation takes place at 2.8m of water absolute, find the maximum length of syphon from the upper reservoir to the summit. Take $f = 0.004$ and atmospheric pressure = 10.3 m of water.

Section-C

Note: Attempt any two parts of the following. (2×15=30)

3. What do you understand by piping layout? Write the steps of piping design.

4. What do you understand by Energy Loss in pipeline? Explain its Classification.

5. Find out the flow in each pipe of the network shown in figure-