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4th Sem / Mechanical, Mech(Tool & Die)

Subject : Hydraulics and Pneumatics

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 The specific weight of water is

a) 1000 N/m^3 b) 9810 N/m^3

c) 9.81 N/m^3 d) 1000 Kg/m^3

Q.2 Continuity equation deals with the law of conservation of

a) Mass b) Momentum

c) Energy d) None of the above

Q.3 The inlet length of venturimeter is _____ the outlet length

a) Equal to b) Less than

c) More than d) Any of the above

Q.4 In a reaction turbine, water at inlet possesses

a) Only pressure energy

b) Only kinetic energy

c) Both pressure and kinetic energy

d) None of the above

Q.5 As a pressure head, the atmospheric pressure is

a) 7.6 m of water b) 76 m of water

c) 1.033 m of water d) 10.3 m of water

Q.6 Relation between Cc, Cd and Cv is

a) Cc = Cd x Cv b) Cc= Cd - Cv

c) Cc= Cd / Cv d) Cd= Cc / Cv

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Define Centre of pressure.

Q.8 What is slip?

Q.9 Define wetted perimeter.

Q.10 Specific gravity = _____

Q.11 What do you mean by Vena Contracta?

Q.12 Define total gradient line.

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Explain with a line diagram, vacuum, gauge, atmospheric and absolute pressure.

Q.14 Explain the construction and working of Bourdans pressure gauge.

Q.15 Explain any 4 types of fluid flow.

Q.16 Write short note on Pelton wheel turbine.

Q.17 Write short note on working of Hydraulic ram.

Q.18 Explain the construction and working of tandem cylinder.

Q.19 Describe the need of priming and its methods.

Q.20 A pipe of 100 mm diameter is used to transport oil of sp. gravity 0.8 under a pressure of 2.5kPa and at a rate of 120 litres/s. Calculate total head in metres, at a point which is 2.5m above the datum line.

Q.21 Explain the working of peizometer with a neat diagram.

Q.22 Describe the criteria for selection of turbines.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Explain Bernoullis theorem and the working of one device based on its principle.

Q.24 Explain the function and working of any 5 components of hydraulic circuits.

Q.25 Explain the cavitation and separation in pumps and their effects.