



REGISTRATION NUMBER

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SRINIX COLLEGE OF ENGINEERING

2nd INTERNAL EXAMINATION-2018-19

Subject- **FMHM**

Semester-**3RD**

Branch-**CIVIL**

Full Mark-**50**

Time-**2.00 Hrs**

ANSWER ALL QUESTIONS (PART-A)

[2X10=20]

1. The specific speed of a turbine under a head of 150m to develop 2000HP while running at 300 r.p.m is?
2. Write down Darcy's formula and loss of head due to friction ?
3. Explain working principle of pump?
4. Define slip?
5. Write down different types of efficiency in pump?
6. Classify turbine ?
7. A Pelton wheel operates at 630 r. P. m. taking 3 m³/s of water under of 256 m with a speed of 48 what is the diameter of impeller?
8. Explain different types of losses in pipe flow?
9. What is stagnation point?
10. Define hydraulic and total energy lines?

ANSWER ANY THREE QUESTIONS (PART-B)

[6X3=18]

1. A triangular gate which has a base of 1.5 m and an altitude of 2 m lies in a vertical plane. The vertex of the gate is 1m below the surface of a tank which contains oil of specific gravity 8 .Find the force exerted by the oil on the gate and position of centre of pressure?
2. A plate of .0254mm distant from a fixed plate, moves at 61cm/sec and requires a force of 2kg(f)/m² to maintain this speed. Determine the dynamic viscosity of the fluid between the plates?

3. A turbine develops 7460 KW under a head of 24.7m at 135 r. p. m. What is the specific speed? What would be its normal speed and output under a head of 19.5m?

4. A stream function in a two dimensional flow is $\psi = 2xy$. Show that the flow is irrotational and determine the corresponding velocity potential function ϕ ?

ANSWER ANY ONE QUESTION (PART-C)

[12X1=12]

1. A Kaplan turbine produces 60,000kw under a net head of 25m with an overall efficiency of 90%. Taking the value of speed ratio as 1.6, flow ratio as 5 and the hub diameter as 35 times the outer diameter, find the diameter and speed of the turbine?
2. A compound piping system consists of 1800m of 50m, 1200m of 40m and 600m of 30m new cast iron pipes connected in series. Convert the system (a) an equivalent length of 40m pipe and (b) an equivalent size pipe 3600 m long?

*******ALL THE BEST*******