Reg. No. : | | | | | | | | | | |

Question Paper Code: 31734

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

Third Semester

Mechanical Engineering

01UME304 – FLUID MECHANICS AND MACHINERY

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Define surface tension.
2. What is moment of momentum equation?
3. What do you mean by hydraulic and energy gradient?
4. Differentiate Orifice meter and venturi meter.
5. Define Reynolds number.
6. List any two applications of Dimensionless parameters.
7. What is specific speed?
8. What is Cavitation?
9. What do you mean by Positive Displacement Machines?
10. What is the use of Indicator Diagrams?

PART - B (5 x 16 = 80 Marks)

11. (a) Discuss the properties of fluids and Types of flow? (16)

Or

(b) Derive Energy equation and momentum equation. (16)

12. (a) Derive Euler's equation and Bernoulli's energy equation. (16)

Or

(b) Derive Darcy-Weisbach equation. (16)

13. (a) Discuss the various Dimensional Parameters with its application. (16)

Or

(b) The efficiency η of a fan depends on density ρ, dynamic viscosity μ of the fluid, angular velocity ω, diameter D of the rotor and the discharge Q. Express the efficiency η in terms of dimensionless parameter. (16)

14. (a) Explain in detail about Impulse turbine and Reaction turbine with a sketch. (16)

Or

(b) Discuss the various performance curves for pumps and turbines. (16)

15. (a) Explain in detail about the Radial flow, axial flow and mixed flow pumps along with the performance calculation. (16)

Or

(b) Classify Rotary pumps with the working and performance curves. (16)