

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE –
Semester Examination – December - 2018

Branch: Electrical Engineering

Subject with Subject Code: Fluid Mechanics & Thermal Engineering (BTEEC303)

Date: - 05-12-2018

Sem.:- III

Max. Marks: 60

Time:- 3Hr.

Instructions to the Students

1. Each question carries 12 marks.
2. Attempt **any five** questions of the following.
3. Illustrate your answers with neat sketches, diagram etc., wherever necessary.
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

- (Marks)
- Q.1. a)** A circular opening, 4m diameter in a vertical side of a tank is closed by a disc of 4m diameter, which can rotate about horizontal diameter. Calculate 1. The force on disc and 2. The torque required to maintain the disc in equilibrium in vertical position, when the head of water above the horizontal diameter is 5m. (6)
- b)** Explain methods of describing fluid motions used in fluid kinematics (6)
- Q.2. a)** Water flows through a pipe AB 1.2m diameter at 3 m/s and then passes through a pipe BC 1.5 m diameter. At C, the pipe branches. Branch CD is 0.8 m in diameter and carries one third of the flow in AB. The flow velocity in branch CE is 2.5 m/s. Find the volume rate of flow in AB, the velocity in BC, the velocity in CD and the diameter of CE (6)
- b)** Explain working of centrifugal pump and define manometric, mechanical and overall efficiencies (6)
- Q.3. a)** Explain working of four stroke petrol engine with neat sketches (6)
- b)** Explain fuel supply system of diesel engine with neat sketch (6)
- Q.4. a)** Explain construction and working principle of reciprocating air compressor (6)
- b)** Elaborate applications of compressed air (6)
- Q.5. a)** Explain working of vapour absorption refrigeration system in detail (6)
- b)** Explain desirable and undesirable properties of refrigerant (6)
- Q.6. a)** Explain centralized air conditioning plant with its applications (6)
- b)** Explain significance of various lines and curves on Psychrometric chart (6)

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