Roll No. ....

24765

B. Tech. 4th Semester (FT)

Examination – May, 2017

PUMPING MACHINERYAND FLUID MECHANICS

Paper : FT-210-F

Time : Three Hours] [*Maximum Marks : 100*

Before answering the question, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt any *five* questions in all. Question number one is *compulsory* and selecting at least *one* question from each Section.

1. (a) Draw inlet and outlet velocity diagram of velocity of jet of moving curved vanes. 5

(b) Why the centrifugal pump is called high discharge pump ? 5

(c) Write short note on different type of flow. 5

(d) Derive Bernoulli's equation from Euler's equation of motion. 5

P. T. O.

SECTION – A

2. A Jet of water having a velocity of 15m/s, strikes a curved vane which is moving with a velocity of 5m/s in the same direction as that of the jet at inlet. The vane is so shaped that the jet is deflected through 135 degree. The diameter of jet is 100 mm. assuming the vane to be smooth. Find (1) force exerted by jet on the vane in the direction of motion. (2) Power of the vane. (3) Efficiency of the vane.   20

3. What is pump ? How can you classify the different types of pump ? Explain the reciprocating pump along with its all parts ?   20

SECTION – B

4. Draw a neat sketch of centrifugal pump and explain the working principle of the centrifugal pump.   20

5. What are the factors which govern the Pump Selection and discuss the Maintenance and application of pump.   20

SECTION – C

6. A triangular plate of base width 1.5m and height 2m lies immersed in water with the apex downwards. The base of the plate is 1 m below and parallel to the free water surface. Calculate the total pressure on the late and the depth of the centre of pressure.   20

7. Explain the one dimensional method of flow analysis.   20

SECTION – D

8. (a) Explain all three Simple manometers with neat sketch.   10

   (b) Explain Differential manometer with neat sketch.   10

9. Derive an expression for discharge in venturimeter. 20