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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)

**M.Tech I Year I Semester Regular Examinations July-2021**

**ADVANCED FLUID DYNAMICS**

(Thermal Engineering)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

**UNIT-I**

- 1 How would you explain the following: L1 12M  
 (i) Fluids  
 (ii) Fluid statistics  
 (iii) Fluid dynamics  
 (iv) Time line

**OR**

- 2 Outline the derivation of continuity equation by using integral and differential approach. L2 12M

**UNIT-II**

- 3 Prove Kelvin's theorem with the help of circulation piece wise continuous function and conservative body forces definitions. L6 12M

**OR**

- 4 Explain Outline the stream function / velocity potential approach. L2 12M

**UNIT-III**

- 5 Discuss in detail about the laminar flow L5 12M

**OR**

- 6 Prove the boundary layer equation in laminar flow L6 12M

**UNIT-IV**

- 7 a) Define turbulent flow. L1 12M  
 b) Explain the characteristics of turbulent flow.

**OR**

- 8 Explain briefly about the laminar turbulent transition. L1 12M

**UNIT-V**

- 9 Evaluate the role of experiments in engineering with suitable examples. L6 12M

**OR**

- 10 Discuss about the sources of error in measurements. L5 12M

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