MECHANICAL PROPERTIES OF FLUIDS

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General Instructions: Answer all the questions. If you are unable to answer any question, go through the page number that is given against that particular question in the text book. You can find the answer.
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Test Paper-III-(Applications of Bernoulli's Theorem)

MAX MARKS: 20   **TIME: 60Mts**

1	State & prove Torricelli's Law	P255	3
2	Name the device used to measure the flow of incompressible fluid. Also explain n how you will measure the speed of flowing fluid at a point inside a tube.	P256	3
3	Give any two applications of Venturimeter.	P256	1
4	The flow of blood in a large artery of an anesthetized dog is diverted through a Venturimeter. The wider part of the meter has a cross-sectional area equal to the artery A = 8mm^2. The pressure drop in the artery is 24 Pa. What is the speed of the blood in the artery? Given that the density of blood is 1.06×10^3 kg m^{-3}.	P257	3
5	Explain how Bernoulli's principle helps in explaining Blood flow in artery and Heart Attack.)	P257	2
6	What is meant by 'Dynamic Lift'? Explain how **'Magnus effect'** takes place in case of spinning ball.	P257	3
7	A fully loaded Boeing aircraft has a mass of 3.3×10^5kg. Its total wing area is 500m^2. It is in level flight with a speed of 960km/h. a. Estimate the pressure difference between the lower and upper surfaces of the wings b. Estimate the fractional increase in the speed of the air on the upper surface of the wing relative to the lower surface (The density of air is ρ =1.2 kg m^{-3})	P258	3
8	Explain how dynamic lift of aircraft wing takes place.	P258	2