Quality Checkers Only way to fulfill your dreams	12th Science : Physics Mechanical Properties of Fluids,	**DATE:** **TIME: 1 hr** **MARKS: 25**
	SEAT NO:	

Note:-

1. All Questions are compulsory.
2. Numbers on the right indicate full marks.

Section A

Q.1 Select and Write the correct answer. **(4)**

1. What do we call the maximum velocity of a fluid in a tube for which the flow remains streamlined?

   A) Hyper velocity B) critical velocity
   C) Stream velocity D) Laminar velocity

2. With increase in temperature, the viscosity of

   A) gases decreases B) liquids increases
   C) gases increases D) liquids decreases

3. In a 20 cm long capillary tube, water rises up to a height of 10 cm. If the system is placed in an artificial satellite revolving around earth, water will rise in it up to a height of

   A) 10 cm B) 20 cm
   C) 981 cm D) 5 cm

4. A block of mass 2 kg is placed on a plane surface. The coefficient of static friction is 0.4. When 2.8 N force is applied on the block parallel to the surface, the force of friction between the block and the surface is

   A) 2.8 N B) 7.84 N
   C) 19.6 N D) Zero

Q.2 Answer the following. **(3)**

1. When two or more drops of mercury are brought into contact, they form a single drop. Why?
2. What is the nature of molecular forces ?
3. How important are fluids in our life?

Section B
Attempt any Four

Q.3 Why does a knife have a sharp edge and a needle has a sharp up? **(2)**

Q.4 Can we have zero angle of contact? Discuss the case. **(2)**

Q.5 Which factors affects the surface tension of liquid? **(2)**

Q.6 What is vacuum? What do you mean by absolute vaccum? **(2)**

Q.7 Prove that, equivalent SI unit of surface tension in J/m^2. **(2)**

Q.8 The relative velocity between two layers of fluid, separated by 0.1 mm is 2 cm/s. Calculate the velocity gradient. **(2)**

Section C
Attempt any Two

Q.9 Explaing working of venturi tube. **(3)**

Q.10 State the characteristics of angle of contact. **(3)**

Q.11 A U-shaped wire is dipped in a soap solution, and removed. The thin soap film formed between the wire and the light slider supports a weight of 1.5×10^{-2} N (which includes the small weight of the slider). The length of the slider is 30 cm. What is the surface tension of the film? **(3)**

Section D
Attempt any One

Q.12 Prove that, equivalent SI unit of surface tension in J/m^2 **(4)**

Find the pressure 200m below the surface of the ocean if pressure on the free surface of liquid is one atmosphere. (Density of sea water = 1060 kg/m^3)

Q.13 Explain gauge pressure and absolute pressure for tank filled liquid. **(4)**