RIZWAN ACADEMY – KASUR

Paper: Physics   **Chapter (6)1**   **Class: F.Sc. Part – I**

FLUID DYNAMICS

Name: _____ **Roll No: (in words)** _____

OBJECTIVE TYPE

Total Marks: 11   **Paper Code:** _____   **Total Time: 10 Minutes**

NOTE: Write your **Roll No.** in space provided. Using lead pencil will result in loss of marks.

Q.No.1: You have four choices for each objective type question as A,B,C and D. The choice which you think is correct; fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

Sr. No.	QUESTION	A	B	C	D
1.	The rate of leak from a hole in a tank is	Independent of its height from the bottom	More if situated near the bottom	More if situated near its top	More at midway between top and bottom
2.	An ideal liquid flows through a horizontal tube of variable diameter. The pressure is lowest where the	Velocity is highest	Velocity is lower	Diameter is largest	Depends upon other factors
3.	When the terminal velocity is reached, the acceleration of a body moving through a viscous medium is	Zero	Positive	Negative	Depends upon other factors
4.	According to Stock's law drag force depends on	Coefficient of viscosity	Radius of the spherical body	Terminal velocity of the body	All of these
5.	The terminal velocity of a drop of water of radius $1 \bullet 0 \times 10^{-3} m$ moving through air is	$114 \bullet 6m \bullet s^{-1}$	$114 \bullet 6m \bullet s^{-1}$	$114 \bullet 6m \bullet s^{-1}$	$114 \bullet 6m \bullet s^{-1}$
6.	Two water pipes of diameter $2 \bullet 0cm$ and $4 \bullet 0cm$ are connected with main supply line. The velocity of flow of water in the pip $2 \bullet 0cm$ diameter is	$4 \bullet 0 times$	$\frac{1}{4} times$	$2 \bullet 0 times$	$\frac{1}{2} times$
7.	Dimensions of coefficient of viscosity are	$\left[ML^{-1}T^{-2}\right]$	$\left[ML^{-2}T^{-1}\right]$	$\left[ML^{-1}T^{-1}\right]$	$\left[ML^{-2}T\right]$
8.	Maximum drag force on a body falling in a viscous medium is $19 \bullet 6N$. Its mass is	$1 \bullet 0kg$	$2 \bullet 0kg$	$3 \bullet 5kg$	$4 \bullet 0kg$
9.	Why are the airplane made to run on the runway before take off?	It decreases atmospheric pressure	It decreases friction	It provides required lift to the airplane	It decreases viscous drag of the viscosity
10.	At high altitude, the blood flows out of nose and ear because	The blood pressure increases at high altitude	The percentage of oxygen in the air increases	The atmospheric pressure decreases there	The density of blood decreases at high altitudes
11.	Bernoulli's equation is based upon law of conservation of	Mass	Energy	Momentum	All of these

SUBJECTIVE TYPE

Total Marks: 18   **Time Allowed: 0 Hours 50 Minutes**

SECTION – I (SHORT QUESTIONS)

2. **Attempt any FIVE questions.**   **(5×2=10)Marks**

   i. Why fog droplets appear to be suspended in air?

   ii. Two boats moving parallel in the same direction are pulled towards each other. Explain.

   iii. State and prove Torricelli's theorem.

   iv. A person is standing near a fast moving train. Is there any danger that he will fall towards it?

   v. Define viscosity? What is meant by drag force? What are the factors upon which drag force depends?

   vi. State the stoke's law and writes its mathematical form.

   vii. What are the conditions for an ideal fluid?

SECTION – II (ESSAY TYPE) Attempt given question

3. **Do as directed...**

i. State and prove Bernoulli's equation.   (5)

ii. Water flowing through a hose whose internal diameter is $1cm$, at a speed of $1m \bullet s^{-1}$. What should be the diameter of the nozzle if the water is to emerge at $21m \bullet s^{-1}$?   (3)

SECTION – III (Practical)

RIZWAN ACADEMY – KASUR

Paper: Physics   **Chapter (6)1**   **Class: F.Sc. Part – I**
FLUID DYNAMICS

Name: _____ Roll No: (in words) _____

4.   **(a) <u>Write answer of TWO questions.</u>   (2×2=4)**
   i.   a
   ii.   c
   iii.   v
   iv.   b

4.   **(b)** Write procedure to determine the resistance of voltmeter by graph method.   (3)
                                            (OR)
          Write procedure to find the unknown high resistance by using neon flash lamp.   (3)
4.   **(c) Answer the following questions on the basis of graph drawn between potential difference**
     (V) **and charge** (Q).   (4)
   i.   What you conclude from the graph?
   ii.   Find the capacitance of capacitor from the graph.

Good Luck
Ch. Khalid Mahmood Ashraf