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**4th Sem./ Mechanical, Mech ( Tool & Die)**

**Subject : Hydraulics and Pneumatics**

Time : 3 Hrs.

M.M. : 60

**SECTION-A**

**Note:** Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Which hydraulic device is similar to flywheel in function?

- a) Hydraulic ram
- b) Hydraulic accumulator
- c) Hydraulic jack
- d) Hydraulic coupling

Q.2 Mercury does not wet the glass tube, due to the \_\_\_\_\_ property

- a) Adhesion
- b) Cohesion
- c) Viscosity
- d) Atmospheric pressure

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Q.3 Hydraulic gradient line always lies

- a) Below the total energy line
- b) Above the total energy line
- c) Parallel to bottom
- d) None of the above

Q.4 Rain drops become spherical due to

- a) Surface tension
- b) Air resistance
- c) Viscosity
- d) Atmospheric pressure

Q.5 Hydraulic lift is based on the \_\_\_\_\_ principle.

- a) Bernoulli's Principle
- b) Pascal's law
- c) Boyles Law
- d) Archimedes Principle

Q.6 The velocity at which the flow changes from laminar to turbulent is called \_\_\_\_\_

- a) Supersonic velocity
- b) Escape velocity
- c) Critical velocity
- d) None of the above

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### SECTION-B

**Note:** Objective/ Completion type questions. All questions are compulsory. (6x1=6)

- Q.7 Define capillarity.
- Q.8 What is cavitation.
- Q.9 The function of impeller is \_\_\_\_\_.
- Q.10 Define Hydraulic Gradient Line.
- Q.11 Vacuum Pressure is also known as \_\_\_\_\_.
- Q.12 Density = \_\_\_\_\_

### SECTION-C

**Note:** Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

- Q.13 Explain Pascal's Law and give its one application.
- Q.14 Write short note on working of piezometer.
- Q.15 What is continuity equation? Derive the equation.
- Q.16 Explain any 4 minor losses in flow in pipes.
- Q.17 Define Reynold's number and give its significant effects.
- Q.18 Explain the working principle of Kaplan Turbine.
- Q.19 Give the function and types of air cylinder.

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- Q.20 Explain multistage pump with diagram and the need of it.
- Q.21 If 15 litres of petrol has a weight of 10.5N, find its specific weight, mass density and specific gravity.
- Q.22 Give the limitations of Bernoulli's theorem.

### SECTION-D

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

- Q.23 Explain the principle and working of venturimeter with a neat diagram.
- Q.24 Explain the construction and working of Hydraulic Ram.
- Q.25 Briefly explain the common faults and remedies of hydraulic and pneumatic systems.

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