

FLUID FACILITIES AND MACHINERY

GUIDE TO LABORATORY PRACTICALS

University of the Basque Country (UPV/EHU)

Energy Engineering Department

SELF - ASSESSMENT

THEME 1: PUMPS – CONNECTIONS

1. The $H-Q$ characteristic curve of a centrifugal pump:
 - a. Fits reasonably well to an exponential function.
 - b. Fits reasonably well to a polynomial of degree 2.
 - c. Fits reasonably well to the equation of a line.
 - d. Fits reasonably well to a sinusoidal equation.

2. The characteristic curve $H-Q$ of a centrifugal pump:
 - a. Has a maximum for high flows.
 - b. Has several peaks and troughs over the range of flows pumped.
 - c. Has no maximum or minimum.
 - d. Has a maximum for low flow rates.

3. The characteristic curve $H-Q$ of a centrifugal pump:
 - a. Indicates the geometric location of the possible operating points.
 - b. Is not dependent on rotational speed.
 - c. Indicates the variation of the viscosity of the pumped fluid.
 - d. It does not depend on the energy provided by its impeller.

4. To couple two centrifugal pumps:
 - a. It is necessary that the two pumps have the same $H-Q$ characteristic curve for the case of series coupling.
 - b. It is necessary that the two pumps have the same $H-Q$ characteristic curve for the case of parallel coupling.
 - c. It is necessary that the two pumps have the same $H-Q$ characteristic curve for both series coupling and parallel coupling.
 - d. It is not necessary for the two pumps to have the same $H-Q$ characteristic curve.

5. When coupling two centrifugal pumps in series:
 - a. Cavitation occurs.
 - b. There is an increase in the viscosity of the pumped liquid.
 - c. The operating point of the system is changed.
 - d. The rotational speed of each is doubled.

6. When coupling two centrifugal pumps in parallel:
 - a. Cavitation occurs.
 - b. There is an increase in the viscosity of the pumped liquid.
 - c. The operating point of the system is changed.
 - d. The rotational speed of each of them is doubled.

7. The Coupling of centrifugal pumps in series is useful to:
 - a. Increase the flow rate delivered by the pumping system.
 - b. Increase the energy delivered by the pumping system.
 - c. Increase both, the flow rate and the energy supplied by the pumping system.
 - d. Avoid cavitation problems.

8. The Coupling of centrifugal pumps in parallel is useful to:
 - a. Increase the flow rate delivered by the pumping system.
 - b. Increase the energy delivered by the pumping system.
 - c. Increase both the flow rate and the energy supplied by the pumping system.
 - d. Avoid cavitation problems.