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**DVOC (Level 4)**

**2nd Sem. / Industrial Tool Mfg.**

**Subject : General Mechanical Engineering-1**

Time : 2 Hrs.

M.M. : 50

**SECTION-A**

**Note:** Very short questions. Attempt all ten questions.  
(10x1=10)

- Q.1 If force acts on a body , it sets up some resistance to the deformation. This resistance is known as\_\_\_\_\_
- Q.2 Torque transmitted by a solid shaft of diameter (d) when subjected to shear stress( $\tau$ ) is\_\_\_\_\_
- Q.3 Steady flow means\_\_\_\_\_
- Q.4 The point of contraflexure is a point where\_\_\_\_\_
- Q.5 Which type of pulley is used for changing the speed of the driven shaft when the speed of driving shaft is constant?
- Q.6 Kaplan turbine is\_\_\_\_\_head\_\_\_\_\_flow turbine.  
(low/high and radial/axial)
- Q.7 Reciprocating pumps are\_\_\_\_\_displacement pumps. (positive/negative)

- Q.8 What is the relation between diameter (d) of a rivet and thickness (t) of the main plate?
- Q.9 Define Hooke's law.
- Q.10 Cavitation in pump is likely to occur at (oulet/inlet)

### SECTION-B

- Note:** Short answer type questions. Attempt any six questions out of eight questions. (6x5=30)
- Q.11 Give the classification of pulleys.
- Q.12 State the Bernoulli's theorem. List out its application.
- Q.13 Draw the shear force and bending moment diagram of cantilever beam with a point load at its free end.
- Q.14 Define strain. Explain its types.
- Q.15 Define cohesion and adhesion. How do they affect the capillarity action for water and mercury?
- Q.16 Describe the common types of riveted joints with neat sketches.
- Q.17 Differentiate between impulse and reaction turbine.
- Q.18 Write types off pulleys. Also find the diameter of pump pulley when a motor pulley is rotates with 1400 r.p.m. and pump pulley with 500 r.p.m. and if the diameter of the motor pulley is 100mm.

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### SECTION-C

- Note:** Long answer questions. Attempt any one questions out of two questions. (1x10=10)
- Q.19 Explain the construction and working of a centrifugal pump.
- Q.20 A solid shaft is subjected to a torque of 1.6KNm. Find the necessary diameter of the shaft if the allowable shear stress is 60MPa. The allowable twist is 1 degree for 20 diameter length of the shaft. Take C=80MPa.

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