1 Physics Quiz Questions on Fluid Mechanics, Grade 12

(1) **1**

MULTIPLE CHOICE | marked out of 1.0 | penalty 0 | One answer only | Shuffle

Water issues from hole in the side of a water tank at 12.0 m/s. What is the height of the water in the tank above the hole? ($\rho = 1000 kgm^{-3}$.) Assume atmospheric pressure above the water in the tank and at the hole.

a. 10.3 m
b. 7.34 m ✓
c. 0 m
d. 1.22 m
e. None

(2) **2**

MULTIPLE CHOICE | marked out of 1.0 | penalty 0 | One answer only | Shuffle

A circular 2.50 cm diameter pipe has a flow velocity of 56.0 cm/s. What is the diameter of the pipe if the flow velocity slows to 13.0 cm/s?

a. 5.3 m
b. 5.19 cm ✓
c. 2.33 cm
d. 10.76 cm
e. None

(3) **3**

MULTIPLE CHOICE | marked out of 1.0 | penalty 0 | One answer only | Shuffle

Water flows at 0.854 m/s down a 1.59 cm diameter hose. What time will it take to fill a circular kiddie pool that is 1.75 m in diameter to a depth of 37.0 cm?

a. 3000 s
b. 5250 s ✓
c. 2320 s
d. 100 s

e. None

(4) **4**

MULTIPLE CHOICE | marked out of 1.0 | penalty 0 | One answer only | Shuffle

What downward force would you need to exert to keep a 14.0 cm radius sphere with a density of $253kgm^{-3}$ submerged in a fluid with a density of $965kgm^{-3}$

a. 80.3 N ✓
b. 40 N
c. 2.4 N
d. 1000 N
e. 10N

(5) **5**

MULTIPLE CHOICE | marked out of 1.0 | penalty 0 | One answer only | Shuffle

What is the buoyant force on a block of wood that is 2.95 cm x 4.50 cm x 4.50 cm submerged in fresh water? ($\rho = 1000kgm^{-3}$)

a. 0.586 N ✓
b. 1.98 N
c. 2.17 N
d. 100 N
e. 10N

(6) **6**

NUMERICAL | marked out of 1.0 | penalty 0

There is a gauge pressure of 812 Torr at a depth of 14.2 m in a fluid. What is the density(in kg/m^3) of the fluid? Assume there is 1 atm above the fluid.

- 777 ± 2 (0%)

(7) **7**

NUMERICAL | marked out of 1.0 | penalty 0

A brake cylinder exerts 342 N of force with an input force of 55.2 N. What is the diameter(in centimeters) of the brake cylinder if the master cylinder has a diameter of 1.21 cm?

- 3.01 ± 0.5 ✓

(8) **8**

MULTIPLE CHOICE | marked out of 1.0 | penalty 0 | One answer only | Shuffle

What is the density(in kg/m^3) of a shot put that has a diameter of 12.0 cm and a mass of 7.26 kg?

a. 8020 ✓
b. 4300
c. 1230
d. 230

(9) **9**

MULTIPLE CHOICE | marked out of 1.0 | penalty 0 | One answer only | Shuffle

What is the total area(in m^2) of some snowshoes, if a 75 kg person does not exert a pressure greater than $1.2 \times 10^3 Pa$?

a. 0.61 ✓
b. 1.22
c. 23
d. 9.22
e. 10

(10) **10**

MULTIPLE CHOICE | marked out of 1.0 | penalty 0 | One answer only | Shuffle

A tank contains Liquid nitrogen ($\rho = 808 kgm^{-3}$). At a depth of 13.5 m there is an absolute pressure of 313.7 kPa. What is the pressure at the top of the liquid in psi?(1 psi $= \frac{101,300}{14.7} pa$)

a. 100
b. 30 ✓
c. 12.4
d. 109
e. None

Total of marks: 10