D. The water drop of radius r is formed in the air. The excess pressure inside the drop is
   a. $2T/r$ b.$4T/r$ c. $6T/r$ d. $8T/r$
E. If the surface tension of a soap solution is T, the excess pressure on the soup bubble of radius r is:
   a. $2T/r$ b.$4T/r$ c. $6T/r$ d. $8T/r$
F. The surface tension of soap solution is $25 \times 10^{-3} N/m$. The excess pressure in N/m^2 inside the soap bubble of diameter $1cm$ is:
   a. 5 b. 10 c. 20 d. 25
G. The surface tension of the soap bubble is $3 \times 10^{-1} N/m$. The total work done in expanding the bubble from $(10 \times 6)cm$ to $(10 \times 11)cm$ is:
   a. $1.5 \times 10^{-3} J$ b. $3 \times 10^{-3} J$ c. $6 \times 10^{-3} J$ d. $11 \times 10^{-3} J$
H. Two bubble of radius r coalesce into one bubble of radius R. Which of the following is true?
   a. $R = 1.8r$ b. $R = 1.6r$ c. $R = 1.4r$ d. $R = 1.2r$
I. A very narrow capillary tube records a rise of $6cm$ when dipped in water. When the area of cross section is reduced to one fourth of the former value, water will rise to a height of
   a. $3cm$ b. $6cm$ c. $12cm$ d. $15cm$
J. The ratio of terminal velocities of two drops of radii R and $R/2$ is,
   a. $1:2$ b. $2:1$ c. $1:4$ d. $4:1$
K. When two tubes of different diameters are dipped vertically, the rise of liquid is
   a. same in both tubes b. more in a tube of large diameter
   c. more in a tube of smaller diameter d. none of the above

Viscosity

36. The viscous drag on a liquid layer does not depend upon
   a. area b. velocity gradient c. nature of liquid d. velocity
37. Eight drops of rain, each with a radius of 2 mm are falling through the air at a terminal velocity of 8 cm/s. If they coalesce to form a single drop, the terminal velocity of the combined drop will be
   a. 8 cm/s b. 16 cm/s c. 27 cm/s d. 32 cm/s
38. When the saline solution is administered to a patient, it flows as a viscous fluid through the line. The line is now replaced by a new one, double the original length and half the original radius. What pressure will be required to empty the saline in 2 hours if a pressure of 10 kPa causes the original tube to empty in 1 hour?
   a. 1.0 kPa b. 2.0 kPa c. 8.0 kPa d. 16.0 kPa
39. A ball of density 0.9 gm/cm is dipped in the water with a coefficient of viscosity of 15 centipoises. If its diameter is 1 mm, with what terminal velocity does it rise?
   a. 1.8 cm/sec b. 2.7 cm/sec c. 3.7 cm/sec d. 5.6 cm/sec
40. A small steel ball falls through a syrup at a constant speed of 10 cm/sec. If the steel ball is pulled upwards with a force equal to twice its effective weight, how fast will it move upward?
   a. 5 cm/sec b. 10 cm/sec c. 15 cm/sec d. 20 cm/sec 52.
41. Bernoulli's equation is applicable in
   a. fluid mechanics b. magnetic field c. sound waves d. electric field
42. Fog drop is suspended in the air which is balanced by
   a. force of gravity b upthrust of air c. surface tension d. elasticity
43. Bernoulli's theorem is based on the conservation of
   a. mass b. energy c. pressure d. momentum
44. Two identical raindrops are falling with a terminal velocity v. If they coalesce to form a big drop, the terminal velocity of the bigger drop is
   a. v b. $2^{1/3}$ v c. $2^{2/3}$ v d. 2v/3
45. The terminal velocity of an object in a liquid is 100 m/s. What will be the terminal velocity of the object in the vacuum?
   a. less than 100 m/s b. more than 100 m/s c. equal to 100 m/s d. value can't be attained