23. The force necessary to pull a circular plate of radius 5 cm from the surface of water having a surface tension of 75 dynes/cm is
    a. 375 dynes b. 375 π dynes c. 750 dynes d. 750 π dynes
24. A disc of metal of radius R has a hole of radius r. It is floating on a liquid of surface tension T. The force of surface tension on the disc is
    a. $2\pi r\,T$ b. $2\pi\,(R-r)\,T$ c. $2\pi\,(R+r)\,T$ d. $2\pi\,(R+r)\,T$
25. The height up to which water will rise in a capillary tube will be
    a. maximum when the temperature of the water is 4 °C
    b. minimum when the temperature of the water is 4 C
    c. minimum when the temperature of the water is 0 °C
    d. equal at all temperatures
26. A capillary tube of radius r can support a liquid of weight 6.28×10^{-4} N. If the surface tension of the liquid is 5×10^{-2} N/m, the radius of the capillary tube must be
    a. 2×10^{-3} m b. 2×10^{-4} m c. 1.5×10^{-3} m d. 2.5×10^{-3} m
27. If T is the surface tension of soap solution, the amount of work done on blowing a soap bubble from diameter d to 3d is
    a. $4\pi d^2\,T$ b. $16\pi d^2\,T$ c. $20\pi d^2\,T$ d. $32\pi d^2\,T$
28. Two soap bubbles have radii in the ratio of 2: 1. The ratio of excess pressure inside these bubbles is
    a. 1:2 b. 2:1 c. 1:4 d. 4:1
29. How high does the water rise in a capillary tube whose inner diameter is 4.4×10^{-2} cm? (The surface tension of water is 73 dyne/cm)
    a. 6.7 cm b. 7.3 cm c. 5.6 cm d. 4.3 cm
30. Two bubbles of radius r coalesce into one bubble of radius R. Which of the following is true?
    a. $R = 2r$ b. $R = 1.2r$ c. $R = 1.4r$ d. $R = 1.8r$
31. A very narrow capillary tube records a rise of 6 cm when dipped in water. When the area of the cross-section is reduced to one-fourth of the former value, water will rise to a height of
    a. 3 cm b. 6 cm c. 12 cm d. 24 cm
32. If the surface tension of the soup solution is T, the work done on blooming the soap bubble of radius r is
    a. $\pi r^2 T$ b. $2\pi r^2 T$ c. $4\pi r^2 T$ d. $8\pi r^2 T$
33. Detergents in hot water enable grease to be removed from plates by
    a. decreasing the density of the liquid
    b. increasing the temperature of the liquid
    c. decreasing the contact angle between the gaseous and the plate
    d. raising the surface tension of water
34. A liquid does not wet the surface of a solid if the angle of contact
    a. 0 b. 90° c. acute d obtuse
35. Calculate the depth of water at which an air bubble of radius 0.4 mm may remain in equilibrium. (Surface tension of water = 72 x 10 N/m and g = 9.8 m/s)
    a. 0.981 cm b. 1.837 cm c 3.674 cm d. 7.348 cm

A. What will be the height of a capillary on the surface of the moon if it is 'h' on earth?
    a. h b. h/6 c. 6h d. zero
B. Two capillary tubes of radii 4cm and 8cm are dipped in the same liquid. What is the ratio of heights through which liquid rises in the tube?
    a. 1:2 b. 2:1 c. 1:4 d. 4:1
C. If the surface tension of a soap solution is T, the work done on blowing the soup bubble of radius r is:
    a. $T\,\pi r^2$ b. $2T\,\pi r^2$ c. $4T\,\pi r^2$ d. $8T\,\pi r^2$