

- Some wine-addicts are smokers. Hence conclusion (II) follows.
27. 3; All women are ministers + All ministers are simpleton =  $A + A = A$  = All women are simpleton. (Conclusion I). Clearly, conclusion II is the same of second statement.
28. 4
29. 1; All jails are guest houses + All guest houses are comfortable.  
=  $A + A = A$  = All jails are comfortable.
- (30-34): On the basis of the information given in five statements the following order of five iron articles in descending order is obtained.  
A-B-E-D-C
30. 3; C is the lightest in weight.
31. 1; A and B are not lighter than E.
32. 2; E is heavier than D and C.
33. 1; A is heaviest in the weight.
34. 1; A, B, E, D, C is the correct descending order of weights of the article.
35. 4; 1st number + 9 = Second number  
2nd number + 13 = Third number
36. 1; 1st number - 4 = Second number  
2nd number - 8 = Third number
37. 3
38. 1; Assumption (I) is the required assumption in the light of given requirements.
39. 3
40. 2; It is not given that how many floors the building has.
41. 2; Let a be the first term of the series in AP  
Let d be its common difference.  
∴  $(a + 5d) + (a + 14d)$   
=  $(a + 6d) + (a + 9d) + (a + 11d)$   
⇒  $2a + 19d = 3a + 26d$   
⇒  $a = -7d$  ⇒ 8th term =  $a + 7d$   
=  $-7d + 7d = 0$
42. 0;  $y = x^3 + kx$   
⇒ Slope of the function y at  $x = 2$   
=  $\left(\frac{dy}{dx}\right)_{x=2} = (3x^2 + k)_{x=2}$   
=  $k + 12$  ... (1)  
∴ Area of the curve  
 $z = a^2 + a$  between  $a = 0$  and  $a = 3$  is given by  
 $\int_0^3 (a^2 + a) da = \left[ \frac{a^3}{3} + \frac{a^2}{2} \right]_0^3$   
=  $9 + \frac{9}{2} = \frac{27}{2}$  ... (2)  
∴ From (1) & (2)  
 $k + 12 = \frac{27}{2}$  (Given)  
⇒  $k = \frac{3}{2}$
43. 3; After five minutes (before meeting top runner covers 2 rounds ie 400 m last runner covers 1 round ie 200 m.  
∴ Top runner covers 800 m race in 10 min.
44. 1; Let the CP of the article be Rs x.  
Profit = 5%  
∴ SP =  $x + 5\%$  of  $x$   
=  $\text{Rs } \frac{21x}{20}$   
If CP would have been  
 $(x - 5\%$  of  $x)$ , ie  $\text{Rs } \frac{19x}{20}$  and SP would have been  
 $\text{Rs } \left(\frac{21x}{20} - 1\right)$ , then gain % = 10  
 $\left(\frac{21x}{20} - 1\right) - \frac{19x}{20}$   
∴  $\frac{19x}{20} \times 100 = 10$   
or,  $\frac{2x - 20}{19x} \times 100 = 10$   
or,  $19x = 20x - 200$   
or,  $x = 200$
45. 2; Suppose the quantity of milk purchased = x litres  
Suppose quantity of water mixed = y litres  
∴ Required ratio of the water and the milk in the mixture =  $y : x$   
CP of x litres of milk = Rs 6.4x  
SP of x litres of milk = Rs 8(x + y)  
∴ CP =  $\frac{\text{SP} \times 100}{100 + \text{Gain}\%}$   
⇒  $6.4x = \frac{(8x + 8y) \times 100}{100 + 37.5}$   
⇒  $880x = 800x + 800y$   
⇒  $80x = 800y$  ⇒  $x = 10y$   
⇒  $\frac{x}{y} = \frac{10}{1}$   
∴ required ratio = 1 : 10
46. 3; Let the speed of the car be x km/hr.  
∴ Speed of the train  
=  $x + 20\%$  of  $x$   
=  $\frac{6x}{5}$  km/hr  
∴  $\frac{5}{6x} \times 75 + \frac{25}{2 \times 60} = \frac{75}{x}$   
⇒  $x = 60$
47. 1; A covers 3.5 km before meeting B in  $(18 \times 3.5) + 3 = 66$  minutes  
B covers a distance of 5.5 km in 66 minutes, ie