## **T.I.M.E**.

Triumphant Institute of Management Education Pvt. Ltd.

## Solutions for QCT510607

1. Applying the weighted average rule, the average weight of all the students in three sections of the class is,  $(50\times40)+(60\times70)+(40\times90)$ 

 $=\frac{9800}{200}=49$  kg.

Alternatively, if we take the arbitrary figure 50 kg as the assumed mean, then the average

$$= 50 + \left(\frac{0 \times 40 + 10 \times 70 + (-10 \times 90)}{40 + 70 + 90}\right)$$
$$= 50 + \frac{700 - 900}{200} = 50 - \frac{200}{200} = 49 \text{ kg} \qquad \text{Choice (2)}$$

- 2. As the two kinds of grapes are mixed in the ratio 3 : 2, let the actual quantities mixed be 3k and 2k. Applying the weighted average rule, the average cost of the mixture can be calculated as  $\frac{(18 \times 3k) + (24 \times 2k)}{(3k + 2k)} = \frac{102}{5}$ = Rs.20.40 per kgChoice (2)
- Let the 11 distinct positive integers be represented by a, b, c, .... k.
  a + b + c + d + e + f + g + h + i + j + k = 21 (11)
  = 231 ------ (1)
  a + b + c + d + e + f = 23 (6) = 138 ------ (2)
  f + g + h + i + j + k = 22(6) = 132 ------ (3)
  Adding equations (2) and (3) and subtracting equation (1), we get, f = 39. Choice (4)
- 4. Total age of 50 students in class X is  $15 \times 50$ = 750 years. Total age of 60 students in class XI is  $16 \times 60$ = 960 years Total age of 110 students = 750 + 960 = 1710 years. Average age of students of both classes put together =  $1710/110 = 15^{6}/_{11}$  years. Choice (1)
- 5. Average value per coin = 775 paise/100 coins 7.75 paise/coin. By the application of the alligation equation. The number of 5 paise coins and the number of 10 paise coins =  $\frac{10 - 7.75}{7.75 - 5} = \frac{2.25}{2.75} = \frac{9}{11}$ Hence the number of 5 paise coins = (9/20) x (100) = 45 Choice (4) Note: The problem can also be solved using simultaneous equation.

- 6. Applying the alligation equation, Quantity of milk/quantity of water =  $\frac{16-0}{18-16} = 8:1$  Choice (1)
- 7. Simple interest on a sum of Rs.P at r% p.a. for n years is given by  $\frac{Pnr}{100}$

Here P = Rs.2,400; n = 4 years; r = 5%  $\therefore$  S.I. =  $\frac{2400 \times 4 \times 5}{100}$  = Rs.480 Choice (4)

8. If interest is compounded half yearly, then the amount is given by  $P\left(1+\frac{r}{100}k\right)^{kn}$ , where p is principal, r is the rate of interest, k is the number of compounding periods and p is the number of verse. Since the interest is

and n is the number of years. Since the interest is compounded every 6 months, the number of time periods is 4. Amount at the end of 2 years

$$= P \left[ 1 + \frac{r}{2 \times 100} \right]^4 = 20,000 \left[ 1 + \frac{15}{200} \right]^4$$
$$= 20,000 \left[ 1 + \frac{15}{200} \right]^4$$
$$= Rs.26,709 \text{ (ignoring the decimal part)}$$
Choice (1)

9. Simple interest for two years = compound interest for two years – Difference between C.I. and S.I. for two years = 704 – 64 = Rs.640. We know that the difference between the compound interest and the simple interest for 2 years is equal to the interest for one year on first year simple interest. Since, simple interest for two years is Rs.640, for one year it is Rs.320. Hence interest for one year on first year's simple interest =  $\frac{r(320)}{100} = 64$ 

$$\Rightarrow r = 20\% \text{ p.a.}$$
Also  $\frac{P \times 2 \times 20}{100} = 640$ 

$$\Rightarrow P = Bs.1.600$$
Choice (1)

10. The compound interest for the  $(n + 1)^{th}$  year is the same as the amount for one year on a principal equal to the  $n^{th}$  year interest.

∴ 1996.5 = 1885[(1 + (r/100)]; ⇒ r = 10% ⇒ r = 10%

Choice (3)

© Triumphant Institute of Management Education Pvt. Ltd. (**T.I.M.E.**), 95B, Siddamsetty Complex, Park Lane, Secunderabad – 500 003. All rights reserved. No part of this material may be reproduced, in any form or by any means, without permission in writing. This course material is only for the use of bonafide students of Triumphant Institute of Management Education Pvt. Ltd. and its licensees/franchisees and is not for sale. (1 page) (ajan/ajbn) QCT510607.Sol/1