

## ANSWERS AND RATIONALE: QUANTITATIVE TECHNIQUES QUESTIONS – SAMPLE SET FOR MAY 31, 2020

1.1 Answer: (c)

### Rationale:

Quantity of old stock =  $x$

Let quantity of new stock be  $y$

We know that all of  $y$  was sold as the store ran out of the new stock

We also know that the total quantity of new stock sold = the total quantity of old stock sold =  $y$ ...(i)

Therefore, we can say that the remaining quantity of old stock = Old stock – New stock =  $x - y$

Therefore, fraction of old stock remaining =  $(x - y) / x = x/x - y/x = 1 - y/x = 1 - [\text{New Stock} / \text{Old stock}]$

1.2 Answer: (a)

### Rationale:

Quantity of old stock sold =  $\frac{1}{3}$ th of old stock =  $y = \text{New stock}$ ...(ii) [From (i) in rationale 1.1]

Therefore, old stock =  $\frac{4}{3}$  of New stock...(iii)

Total sale = Old stock sold + New stock sold =  $y + y = 2y = 2 * \text{New stock}$

Total stock =  $x + y = \frac{4}{3}$  of new stock + new stock =  $\frac{7}{3}$  of new stock [From (iii) above]

Fraction of total stock sold =  $2 * \text{new stock} / [\frac{7}{3} \text{ of new stock}] = \frac{6}{7}$

1.3 Answer: (b)

### Rationale:

Let quantity of new stock sold to first customer be  $q_2$  ...(i)

Let quantity of old stock sold to second customer be  $q_1$ ...(ii)

Total quantity of new stock and old stock sold to second customer = (i) + (ii) =  $q_2 + q_1$

Quantity of old stock sold to third customer =  $q_1$

Quantity of old stock sold to fourth customer =  $q_1$

Total quantity of new stock sold =  $q_2 + q_2 = 2q_2$ ...(iii)

Total quantity of old stock sold =  $q_1 + q_1 + q_1 = 3q_1$ ...(iv)

We know that  $3q_1 = 2q_2$ ...(v)

Therefore,  $q_1 / q_2 = \frac{2}{3}$

1.4 Answer: (c)

**Rationale:**

Quantity of old stock sold =  $\frac{3}{4}$ th of old stock =  $\frac{3}{4} * x$  [From question 1.2]

Therefore, quantity of old stock remaining =  $\frac{1}{4} * x$ ...(i)

New stock =  $3 * \frac{1}{4} * x = \frac{3}{4} * x$  [The third stock is thrice the remainder of the old stock]...(ii)

Let the quantity of stock sold to each customer be  $q$

Quantity sold to 1st customer =  $q$  from the old stock...(iii)

Quantity sold to 2nd customer =  $q$  from the third stock...(iv)

Quantity sold to 3rd customer =  $q/2$  from the old stock and  $q/2$  from the third stock...(v)

Quantity sold to 4th customer  $q$  from the third stock...(vi)

Total new stock sold =  $q + q/2 + q = 5q/2$ ...(vii) [From (iv) + (v) + (vi)]

Quantity of new stock sold as a fraction of the new stock = (vii) / (ii) =  $5q/2 / \frac{3x}{4} = (5q * 4) / (2 * 3x) = 10/3 * q/x =$

$10$  [Quantity sold per customer] /  $3$  [Opening stock]

1.5 **Answer:** (d)

**Rationale:**

Quantity sold to 1st customer = Quantity sold to the fourth customer =  $q$  [From (iii) and (vi) in rationale 1.4]

Quantity of old stock remaining =  $\frac{1}{4} * x$  [From (i) in rationale 1.4] =  $120/4 = 30$

Total sale from old stock =  $q$  (Sale to 1st customer) +  $q/2$  (Sale to 3rd customer) [From (iii) and (v) in rationale 1.4] =  $\frac{1}{4} * x$  [All of the old stock was sold]

=  $3q/2 = 30$

Therefore,  $q = 2 * 30 / 3 = 20$

\*\*\*\*\*