Statement Test 5

1. A person invests Rs. 12,000 as fixed deposit at a bank at the rate of 10% per annum simple interest. But due to some pressing needs he has to withdraw the entire money after 3 years, for which the bank allowed him a lower rate of interest. If he gets Rs. 3,320 less than what he would have got at the end of 5 years, the rate of interest allowed by the bank is.
(a) 7 5/9% (b) 7 4/9% (c) 7 8/9% (d) 8 7/9%

2. A, B and C entered into a partnership with an investment of Rs.5000, Rs.7500 and Rs.9000 respectively and after 1 year of investment, A withdraws half of the investment and C withdraws 1/3rd of investment. If at the end of two years, the difference between the profit of A and C is Rs.2000, then find the total profit obtained by A, B and C together.
a) Rs.12000 b) Rs.10000 c) Rs.8000 d) Rs.9500 e) Rs.11000

3. The ratio of the radius and height of the cylinder is 5:7 and the length and breadth of the rectangle is equal to the height and radius of the cylinder respectively. Find the volume of the cylinder, if the area of the rectangle is 140 m2.
a) 4400 m3 b) 4000 m3 c) 4500 m3 d) 4200 m3 e) 3950 m3

4. The sum of the speed of Train A and Train B is 126 km/hr and the ratio of speed of Train A and Train B is 3:4 and the time taken by Train A to cross an electric pole is 40 seconds. Find the time taken by Train A and Train B to cross each other in opposite direction, if the length of Train B is 200m more than the length of Train A.
a) 40 seconds b) 50 seconds c) 35 seconds d) 25 seconds e) 58 seconds

5. Ratio of the cost price and the marked price of handbag A is 5:7 and the cost price of handbag B is 20% more than the cost price of handbag A. If the shopkeeper offers a discount on handbag A is 20% and the selling price of handbag A is Rs.840, then find the cost price of handbag B?
a) Rs.900 b) Rs.500 c) Rs.700 d) Rs.800 e) None of these

6. The perimeter of a square is 80m and the length of the rectangle is 25% more than the side of the square and the area of the rectangle is 600m2. Find the sum of the perimeter of the rectangle and circumference of the circle, if the radius of the circle is 2m more than the half of the breadth of the rectangle.
a) 186m b) 190m c) 176m d) 180m e) 195m

7. A work which can be completed by 24 men in 15 days, can also be completed by 30 women in 16 days. 10 men and 10 women start working and work for 16 days. How many more men are required to work to complete the remaining work in 1 day?
A) 80 B) 72 C) 75 D) 56 E) 68

8. The ratio of length of each equal side to third side of an isosceles triangle is 5 : 6. If the area of the isosceles triangle is 108 sq. cm and the third side of the triangle is equal to the diameter of a circle. What is be the area of the circle (in sq. cm)?
A. 144π B. 36π C. 225π D. 81π E. None of these

9. If Jackey loses 6 kg of his weight, then the average weight of Jackey and his sister Jara will become 45 kg. If Jara loses 5 kg of her weight then, the average weight of Jackey and Jara together with their mother will become 60 kg. The weight of Jackey is how many kg more than that of Jara?
A. 12 B. 11 C. 18 D. 20 E. Can't be determined

10. Among three unequal numbers, the difference between the smallest and the second smallest number is equal to the difference between the second smallest and the highest number. If smallest number is 24% less than the highest number, than the second smallest number is what % of highest number?
(A) 66% (B) 55% (C) 88% (D) 77% (E) None of these

11. The discount allowed on an article is rs.960 more than the profit earned on the article. If the selling price of the article is rs.1920 and shopkeeper marked the article 100% above its cost price, then find profit% earned on the article.
a. 10% b. 20% c. 12% d. 18% e. 40%

12. The height of cylinder is equal to the side of square. If area of square is 196m^2 and ratio and ratio of radius to height of cylinder is 3 : 2, then find total surface area of such cylinder.
a. 5630 b. 6450 c. 3420 d. 4620 e. 6430

13. Two trains S and T having the same length which is 180 meters are moving towards each other. The speed of train S is 6 m/s less than the speed of train T. If train S crosses train T completely in 5 seconds, then what is the speed of train S?
(A) 32 m/s (B) 30 m/s (C) 31 m/s (D) 33 m/s (E) None of these

14. Two horse can complete a race of 5.4 km in 9 min and 6 min respectively. On a particular day, the faster horse gives a lead of 600 meters to the slower horse for race of 5.4km and both horses reach the destination at same time, then calculate the speed of slower horse on that day if faster horse ran with his usual speed?
(a) 54 km/hr (b) 48 km/hr (c) 36 km/hr (d) can't be determined (e) 72 km/hr

15. Two filling pipes A and B can fill an empty tank in 16 hours and 24 hours respectively. Pipe A start filling alone and after 4 hours pipe B was also opened. When 50% of tank was filled, a leak was developed which could make empty the completely filled tank in 32 hours. It took 6 hours to find and close the leak. In how much time the tank was filled from start?
(a) 11 hr.(b) 15 hr.(c) 13 hr.(d) 12.4 hr.(e) 16 hr.

16. Two trains P and Q start running from Kanpur to Bhopal and Bhopal to Kanpur respectively. Both trains start at 8:00 A.M. If the distance between Bhopal and Kanpur is 720 km and if speeds of train P and Q is 80 km/hr and 90 km/hr respectively, then at what distance from Kanpur both trains meet?
(a) 340 km (b) 6540/17 km (c) 6480/17 km (d) 5760/17 km (e) None of these

17. A mixture of 240 liters contains milk and water in the ratio of 5 : 3. A milkman mixes some more water in it and claim to sell it at cost price. If cost price of pure milk is Rs. 20/liter and water is freely available and milkman made a total profit of 80% on cost price of pure milk then find amount of water he mixed in the milk.
(a) 40 liters (b) 30 liters (c) 20 liters (d) 35 liters (e) 45 liters

18. A can complete a piece of work in 4 days. B takes double the time taken by A, while C takes double the time to that of B, and D takes double than that of C to complete the same task. They are paired in groups of two each. First pair takes two-thirds of the time needed by the second pair to complete the work. Which will be the first pair?
A)B and C B)A and B C)C and D D)A and D E) None of these

19. Ashwani has a certain amount of money with him. He can buy either 60 apples or 40 mangoes. He wants to spend only 70% of his money. So, he buys 14 mangoes and some apples. Find out the number of apples purchased by Ashwani?
(a) 23 (b) 21 (c) 28 (d) 25 (e) 18

20. Two trains, running at the rates of 75 km and 60 km per hour respectively on parallel rails in opposite direction are observed to pass each other in 8 sec and when they are running in the same direction at the same rates as before, a person sitting in the faster train observes that he passes the other in 63/2 secs. Find the length of the faster train.
A)131.25 metres B)94.44 metres C)168.75 metres D)250 metres E) None

21. Three taps P, Q, R when opened alternatively for 1 minute each, can fill a tank in 18 minutes. Time taken by P alone is 5 minutes more than Q and R take together. Find the time taken by Q alone to fill the tank, if R is 20% less efficient than Q.
(a) 16 minutes(b) 22 ½ minutes(c) 18 minutes(d) 15 minutes(e) 27.5 minutes

22. Ratio between length of two trains X & Y is 3 : 4 and both the trains are running at the speed of 81 km/hr and 108 km/hr respectively. If both the trains are running in the opposite direction, they crossed each other in 8 sec, then find in what time both trains will cross each other when running in same direction?
(a)48 sec (b)56 sec (c)44 sec (d)42 sec (e)40 sec

23. Two vessels contain a mixture of spirit and water in the ratio of 5 : 3 and 5 : 4 respectively. If 40 liter mixture from first vessel taken out and mixed in second vessel, so new ratio of spirit and water in second vessel becomes 25 : 19. Find an initial quantity of mixture in second vessel?
(a) 150 li (b) 160 li (c) 180 li (d) 140 li (e) 120 li

24. The ratio of milk to water in mixture A is 3:1, and the ratio of milk to water in mixture B is 4:1. The cost of pure milk is ₹65 per litre. When both mixtures are combined, the cost of the new mixture becomes ₹50 per litre. If the ratio of the quantity of milk in mixture A to that in mixture B is P:Q, find the value of ($P^2 - Q^2$).
1.9 2.5 3.16 4.7 5.None of these

25. The selling price of 10 units of an article is equal to the cost price of 15 units of the article, and the total profit percentage of selling the 15 articles is P%. If 1 unit of the article were marked up by (P – 14)%and sold at a discount of (P/2)% discount from the marked price, then what would have been the profit/loss percentage on 1 unit of the article?
1.8% 2.2% 3.5% 4.7.5% 5.4%

1

S144. Ans.(b)

Sol.

$$\text{S.I. after five years} = \frac{\text{Principal} \times \text{Time} \times \text{rate}}{100} = 6000$$

$$\text{Interest earned} = 2680$$

$$\text{Rate} = \frac{2680 \times 1000}{12000 \times 3} = 7\frac{4}{9}\%$$

2) Answer: B

Profit ratio of A, B and C = (5000*1)+(5000/2*1) : (7500*2) : (9000*1)+(9000*2/3*1)

= 1 : 2 : 2

Difference between profit of A and C = x = 2000

Total profit = 2000*5 = Rs.10000

3) Answer: A

Radius of the cylinder = 5x

Height of the cylinder = 7x

Length of the rectangle = 7x

Breadth of the rectangle = 5x

7x * 5x = 140

x2 = 4

x = 2

Radius of the cylinder = 5*2 = 10m

Height of the cylinder = 7*2 = 14m

Volume of the cylinder = Πr2h = 22/7 * 10 * 10 * 14 = 4400 m3

4) Answer: A

Speed of Train A = 126 * 3/7 = 54 km/hr = 54*5/18 = 15 m/s

Speed of Train B = 126 * 4/7 = 72 km/hr = 72*5/18 = 20 m/s

Length of Train A = 15*40 = 600m

Length of Train B = 800m

Time taken = (600+800)/(20+15) = 40 seconds

5) Answer: A

CP of the handbag A=5x

MP of the handbag A=7x

CP of the handbag B=5x*120/100=6x

SP of the handbag A=7x*80/100=5.6x

5.6x=840

x=150

CP of the handbag B=6*150=Rs.900

6) Answer: A

Perimeter of a square = 80m

4a = 80

a = 20m

Length of the rectangle =20*125/100 = 25m

l*b = 600

25 * b = 600

b = 24m

Radius of the circle = 24/2 + 2 = 14m

Perimeter of the rectangle = 2(l+b) = 2(25+24) = 98m

Circumference of the circle = 2Πr = 2*22/7*14 = 88m

Required sum = 98+88 = 186m

7. Option D

Solution:

24 m in 15 days, so 10 m in 24*15/10 = 36 days

30 w in 16 days, so 10 w in 30*16/10 = 48 days

So in 16 days they together complete = (1/36 + 1/48) * 16 = 7/9 work

Remaining work = 2/9

Now 24 m complete 1 work in 15 days. Let x men complete 2/9 work in 1 day

So

M1*D1*W2 = M2*D2*W1

24*15*(2/9) = x*1*1

x = 80

So extra men = 80 – 24 = 56

8. Correct Option: D

Let the sides of the triangle = 5x, 5x, and 6x cm

Then, half of the perimeter = $s = \frac{5x + 5x + 6x}{2} = 8x$

The area of the triangle = s (s – a)(s – b)(s – c) = 108

8x (8x – 5x) (8x – 5x)(8x – 6x) = 108

8x (3x) (3x) (2x) = 108

$12x^2 = 108$

$x^2 = 9$

x = 3

The third side = 6x = 18 cm = Diameter of the circle

The area of the circle = A = $\pi r^2 = \pi \times 9^2 = 81\pi$ sq.cm

Hence, option D is correct.

9. After losing 6 kg, let the weight of Jackey = x kg Let the weight of Jara = y kg then x + y = 45 × 2 = 90 kg .....(i) Case II:

When Jara loses 5 kg then, the weight of Jara = y – 5 kg

The weight of Jackey = x + 6 kg

Let the weight of their mother = z kg

Then, y – 5 + x + 6 + z = 180 kg

x + y + z = 179 kg

From the equation (i)

z = 179 – 90 = 89 kg

Now we have only one equation, x + y = 90 kg

We could not find the two unknowns by one equation

Hence, option E is correct.

10. Ans. (C)

Highest number = x, Smallest number = 0.76x Second smallest number = (x + 0.76x)/2 = 1.76x/2 = 0.88x % = 0.88x/x × 100 = 88%

11. Option B

Let cost price of the article = rs.100x

MP = 100x *2/1 = 200x

ATQ, (200x – 1920) – (1920 – 100x) = 960

300x = 4800

x = 16

CP = 1600

Profit % = 1920 – 1600/1600 * 100 = 20%

12. Option D

Side of square = √196 = 14m

height = 14m
radius = 14/7 * 6 = 21
TSA = 2πr (h + r)
= 2 * 22/7 * 21(14 + 21)
= 4620

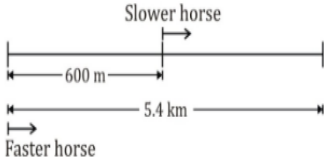
13. Ans. (D)

Speed of Train S = s m/s
(s + s + 6) × 5 = 180 × 2
2s + 6 = 72
2s = 66
s = 33 m/s

14. B

S1. Ans.(b)

Sol.



Speed of slower horse = $\frac{5.4\times1000}{9\times60}$ = 10 m/sec

Speed of faster horse = $\frac{5400}{6\times60}$ = 15 m/sec

Let slower horse increases his speed by x m/sec to reach at same instant as faster reach

$\therefore \frac{5400}{15} = \frac{4800}{(10+x)}$

$\Rightarrow 9x = 30$

$\Rightarrow x = \frac{10}{3}$ m/sec

$x = \frac{10}{3} \times \frac{18}{5} = 12$ km/hr

$\therefore$ Required answer = $10 \times \frac{18}{5} + 12 = 48$ km/hr

15. C

S2. Ans.(c)

Sol.

Let B was opened for x hours before leak was developed.

$\therefore \frac{(4+x)}{16} + \frac{x}{24} = \frac{50}{100}$

$\Rightarrow 12 + 3x + 2x = ½ \times 48$

$\Rightarrow 5x = 12$

$\Rightarrow x = 2.4$ h

6 hours work of all the three taps

$= \frac{6}{16} + \frac{6}{24} - \frac{6}{32}$

$= \frac{36+24-18}{96} = \frac{42}{96}$

$= \frac{7}{16}$

Remaining part of tank = $1 - \left(\frac{1}{2} + \frac{7}{16}\right) = \frac{1}{16}$

This part will be filled by filling pipes A and B

$\therefore$ Required time = $4 + 2.4 + 6 + \frac{1}{16} \times \left(\frac{24\times16}{24+16}\right)$

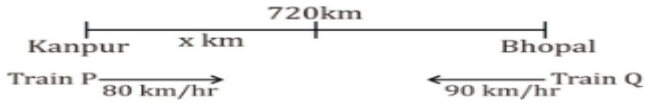
= 12.4 + 0.6

= 13h

16. D

S3. Ans.(d)

Sol.



Let both trains meet at x km from Kanpur.

Time taken by train P to cover x km

= time taken by Q to cover (720 − x) km

$\Rightarrow \frac{(720-x)}{90} = \frac{x}{80}$

$\Rightarrow 9x = 5760 - 8x$

$\Rightarrow x = \frac{5760}{17}$ km

17. B

S5. Ans.(b)

Sol.

Pure milk is mixture = $\frac{5}{8} \times 240 = 150$ ℓtr

Total C.P. of pure milk = 150 × 20 = 3000 rupees

Let x ltr water is added

$\therefore$ Total S.P. of mixture = (240 + x) × 20

ATQ,

$\frac{(240+x)\times20-3000}{3000} \times 100 = 80$

$\Rightarrow 480 + 2x - 300 = 240$

$\Rightarrow 2x = 240 - 180$

$\Rightarrow 2x = 60$

$\Rightarrow x = 30$ ℓtr

18.Solution: D

Work done in one day by A, B, C and D are 1/4, 1/8, 1/16 and 1/32 respectively

Using option,

B & C does 3/16 of work in one day

While A & D does $\frac{1}{4} + \frac{1}{32} = \frac{9}{32}$ of work in one day.

Hence,

A & D take 32/9 days.

While B & C take 16/3 = 32/6 days

Hence, the 1st pair must comprise of A & D.

19. B

S3. Ans.(b)

Sol.

Amount required to buy either 60 apples or 40 mangoes = 100% available amount

Since 14 is 35% of 40

$\therefore$ Amount spent on buying 14 mangoes = 35% of available amount

Remaining money = (70% − 35%) of available money = 35% of available amount

Number of apples that can be purchased with 35% of available amount = 35% of 60 = 21

20.Solution: C

Combined length of trains = $(75 + 60) \times \frac{5}{18} \times 8 = 300$ m

Length of slow train, $\ell_s = \frac{63}{2} \times (75 - 60) \times \frac{5}{18} = 131.25$ m

$\therefore$ length of faster train = $300 - 131.25 = 168.75$ m

21. Ans.(c) Sol.

When P, Q and R are opened alternatively for 1 minutes each, time taken by them is 18 minutes. If all of them are opened simultaneously, they will fill tank 3 times faster. Hence time taken by each of them = 18/3 = 6 minutes.

Tank filled by them in 1 minute when all of them are opened together = 1/6

Let Q and R together takes x minutes
∴ A will take x + 5 minutes
Now
$\frac{1}{x}+\frac{1}{x+5}=\frac{1}{6}$
$\frac{2x+5}{x(x+5)}=\frac{1}{6}$
$12x + 30 = x^2 + 5x$
$\Rightarrow x = 10$ minutes
Hence time taken by Q and R together is 10 minutes.
Given,
R is 20% less efficient than Q.
Let R takes 5K minutes
Q takes 4K minutes
Then
$\frac{1}{5K}+\frac{1}{4K}=\frac{1}{10}$
$\frac{9}{20K}=\frac{1}{10}$
$K=\frac{9}{2}$
∴ Q takes $=\frac{4\times9}{2}$ = 18 minutes

22. B

S2. Ans(b)

Sol.

Let length of train X & Y be 3L meter and 4L meter respectively.

A/Q,

$(81 + 108) \times \frac{5}{18} = \frac{3L+4L}{8}$

$52.5 \times 8 = 7L$

L = 60 meter

Length of train X = 180 meters

Length of train Y = 240 meters

Let, when trains are running in same direction cross each other in T sec

$(108 - 81) \times \frac{5}{18} = \frac{180+240}{T}$

7.5 T = 420

T = 56 sec

23. C

24. Answer: B
Let the quantities of milk and water in mixture A be '3x' L and 'x' L, respectively.
Also, let the quantities of milk and water in mixture B be '4y' L and 'y' L respectively.
After mixing both the mixtures together:
The total quantity of milk in the new mixture = (3x + 4Y) L
And the total quantity of water in the new mixture = (x + y) L
From the question:
=>[(3x + 4y) * 65]/(4x + 5y) = 50
=> (3x + 4y) * 13 = (4x + 5y) * 10
=> 39x + 52y = 40x + 50y
=> x = 2y
Now, the quantity of milk in mixture A = 3x = 3 * 2y = '6y' L
The quantity of water in mixture A = x = '2y' L
The quantity of milk in mixture B = '4y' L
And the quantity of water in mixture B = 'y' L
Since the ratio of the quantity of milk in mixture A to that in mixture B:
=> P: Q = 6y: 4y
=> P: Q = 3: 2
So, the value of $(P^2 - Q^2) = (3^2 - 2^2) = 5$

25. Answer: B
Let, the SP of 10 units = the CP of 15 units = 15x
The SP of 1 unit = 15x/10 = 1.5x
The SP of 15 units = 1.5x * 15 = 22.5x
So, the profit per cent:
=> P = [(22.5 – 15)/15] * 100
=> P = 50%
Let the CP of 1 unit of the article = 100y
So, the MP of 1 unit of the article = (100 + P – 14)% of 100y = (100 + 50 – 14)% of 100y = 136y
And the SP of 1 unit of the article = (100 – P/2)% of 136y = (100 – 50/2)% of 136y = 102y
So, the profit per cent on 1 unit of the article = [(102y – 100y)/100y] * 100 = 2%