Statement Test 3

1. Two students A and B wrote an exam such that probability of A passing the exam is 2/5 and probability of B passing the exam is 2/3. What is the probability of at least one of them failing the exam? **A.**11/15 **B.**3/4 **C.**9/10 **D.**2/5 **E.**19/40

2. A invested ₹20,000 and ₹25,000 at simple interest with rate of interest as (x+5)% and (x+9)% per annum for a period of (x+2) and (x+5) years in scheme P and scheme Q respectively. If the interest earned by him on scheme P is one-third of the interest earned on scheme Q then find the value of x. A.4 B.3 C.5 D.2 E. None of these

3. Ramu marked up the price of article A and article B both 20% above the cost price. The cost price of article A is double that of article B. At the time of sale Ramu gave a total discount of ₹120 on both the articles and earned 10% profit on total. Find the cost price of article of article A?
A.200 B.275 C.320 D.400 E.None of these

4. A and B can do a piece of work in 40/3 days while B and C can do the same work in 120/7 days. If B and C start working together and both leave the work after 5 days, then the remaining work can be completed by A in 17 days. Find in how many days, A, B and C working together can complete the work. A.10days B.12days C.8days D.15days E.None of these

5. A person invested Rs1700 at R% per annum simple interest and Rs2000 at (R+4)% per annum simple interest. If total interest received by him at the end of 4 years is Rs2688. Find the compound interest earned on Rs3500 at (R+4)% per annum compounded annually in 2 years.
(a)Rs1540 (b)Rs1240 (c)Rs1680 (d)Rs1520 (e)None of these

6. Aman and Pooja entered into a business with initial investment of Rs25200 and Rs29400 respectively. The ratio of the time for which they made their investments is 2:3 respectively. If profit share of Aman is Rs5600 then the total profit earned by Aman and Pooja together.
(a)Rs16800 (b)Rs15400 (c)Rs14800 (d)Rs12400 (e)None

7. 663 ml of mixture A containing milk and water in the ratio of 7:6 respectively is mixed with mixture B containing (x+43) ml of milk and (x–6) ml of water in it such that the ratio of milk to water in the resultant mixture becomes 6:5. Find total quantity of mixture B.
(a)437ml (b)521ml (c)637ml (d)537ml (e)None of these

8. SI and CI (compounded annually) earned on a certain amount of sum invested at R % per annum at the end of 6 years and 2 years respectively is Rs 5760 and Rs 2073.6 respectively. Find the sum invested. (a)Rs5200 (b)Rs6400 (c)Rs5400 (d)Rs6000 (e)None of these

9. The number of boys in a class are x and the number of girls are 4 less than the number of boys. The sum of weight of boys is 630 and the average weight of boys is 45 kg. If 2 students are selected for a exam then what will be the probability that the number of boys the numbers of girls are equal ? a. 4/9 b. 35/69 c. 82/265 d. 36/129 e. 1/5

10. A boat takes total 10 hours to cover the distance of 84 km in upstream and 84 km in downstream. If the speed of boat is increased by 12km/hr, then the new upstream speed is doubled of its usual speed. Find the time taken by boat to cover 140 km in downstream.
a. 5 b. 8 c. 2 d. 6.5 e. 2.5

11. A and B started a partnership business with investment (x + 500) and (x – 1000) respectively. After 6 months a withdrew 40% of his amount. If profit received by A at the end of the year is 2800 out of the total profit rs.4800, then what is the value of 'x'?
a. 4000 b. 2000 c. 1500 d. 3000 e. 5600

12. A jug contains (x + 136) liters of a mixture (water + alcohol) such that the quantity of alcohol in it is (x – 80) liters more than the quantity of water in it. (x – 48) liters of the mixture in the jug is replaced with 26 liters of water such that ratio of water to alcohol in the jug now becomes 7:8. What is the value of 'x'? A.140 B.165 C.148 D.172 E.126

13. A train can cross a man walking at speed of 18 km/h in the same direction as of the train, in 12 seconds and can cross a 208 metres long bridge in 16 seconds. The normal speed of a car on flat road is 3 m/s more than the speed of the train. On downhill road, the speed of the car increases by 12.5% w.r.t. its normal speed. What is the total time taken by the car to travel 243 km in downhill road? (Note: There is no initial separation between the train and the man).
A.0.75 hours B.2.5 hours C.1.25 hours D.2 hours E.1.5 hours

14. Saroj invested Rs. (x + 1775) and Rs. 'x' in a gold scheme for 2 years and a mutual funds scheme for 4 years, respectively. The gold scheme and mutual funds scheme offers compound interest of 40% p.a., compounded annually and 20% p.a. compounded annually, respectively such that the amount received from given two schemes at the end of desired time is equal. What is the total sum invested by Saroj in both the schemes together?
A.Rs. 58,825 B.Rs. 56,725 C.Rs. 63,225 D.Rs. 58,025 E.Rs. 63,025

15. The cost price of article 'B' is Rs. 120 more than that of article 'A'. The selling price of articles 'A' and 'B' is the same when they are sold at a profit of 32.5% and 25%, respectively. The cost price of article 'C' is the average of cost price of articles 'A' and 'B'. If article 'C' is marked 50% above its cost price and sold after giving a discount of 20%, then what will be the selling price of article 'C'? A.Rs. 2,356 B. Rs. 2,562 C.Rs. 2,472 D.Rs. 2,818 E.Rs. 2,632

16.The ratio of number of boys and girls in class 'A' is 6:7, respectively and their respective average weights is 40 kg and 44 kgs. The ratio of number of girls and boys in class 'B' is 13:12, respectively, and their respective average weights is 45 kg and 50 kg. The ratio of number of boys in class 'A' to that in class 'B' is 3:4. If the total weight of class 'B' is 726 kg more than that of class 'A', then what is the total weight of all the boys in class 'A' and 'B' together?
A.1956 kg B.1760 kg C.1980 kg D.2110 kg E.1920 kg

17. There is a row of 8 chairs in which 5 boys and 3 girls are to be seated. Among the 5 boys, only 2 boys wear red shirt. The seating arrangement is to be carried out in such a way that all the boys are seated together, but the two boys wearing red-shirt cannot sit together. How many such arrangements are possible? A.1926 B.1728 C.1452 D.1752 E.1512

18. The sum of 5 consecutive numbers is 850. The smallest number (x) among these is taken and if the digit at the ten's place and the digit at the hundredth place is added, then it forms the digit at the tenth place of a two digit number 'a' and the digit at the unit place of 'a' is same as the digit at the unit place of 'x'. What is the least common multiple of 'a', 299 and 1222?
A. 81276 B. 84318 C. 79128 D. 77156 E. 79892

19. A cricketer's batting average in first _____ innings is 40 runs, but due to his poor form, his average in next 20 innings is ____ runs, then the overall average becomes _____. Which of the following does satisfy the blanks in the same order?
(i) 50, 22.5 and 35 **(ii)** 30, 25 and 38 **(iii)** 60, 16 and 34.
1.Both (ii) and (iii) follow 2.Only (i) follows 3.Both (i) and (iii) follow 4.All (i), (ii) and (iii) follow 5.None follows

20. Vessel P contains mixtures of milk and water in ratio of 6:1, while vessel Q contains mixture of milk and water, in which milk is 50% more than that of water. If (4M + 100) ml and (2.5N + 55) ml taken from vessel P and Q respectively poured in to vessel R, such that water in vessel R becomes 22% of total mixtures. If we adding 102 ml water in vessel R, then amount of milk in vessel R becomes twice as that of water. Find difference between value of M and N?
1.40 2.80 3.30 4.50 5.None of these

21. Arun travelling in a boat from point P to point Q. After travelling 40 km, his dog unfortunately fell down from the boat, but Arun was unaware of that. After 40 minutes Arun realized then he suddenly moves his boat in the direction in which the dog is floating to save him. Arun saves him exactly at point P. If flow of river is from Q to P, and the dog doesn't know how to swim, then find the speed of the boat in still water.
1.30 km/hr 2.60 km/hr 3.90 km/hr 4.120 km/hr 5.Can't be determined

22. P is 40% less efficient as Q, they are working in alternate manner. On first day P worked, and on last day also P worked for exactly whole day, so in this manner work in completed in M days. If P alone worked continuously so he can complete the work in 40/3 days more than that time taken by P and Q together to complete the work together. Time taken by P and Q together to complete the work (not in alternate manner) is (N + 43/8) days. Find the value of N.
1.20 2.15 3.10 4.12 5.None of these

23. Shyam buys 600 laptops at Rs. 40,000 per unit from vendor A and buys 500 laptops at Rs. 35,000 per unit from vendor B and then sells all the laptops at Rs 50,000 per unit. What is the profit percentage?
A. 32.5 B. 47.5 C. 57 D. 65 E. None of these

24. Two merchants sell an article for Rs.1,000 each. Merchant A computes his profit on cost price while Merchant B computes his profit on selling price. Both make a profit of 25% each. By how many rupees is the actual profit made by B more than that made by A?
A. Rs. 75 B. Rs. 66 C. Rs. 60 D. Rs. 50 E. None of these

25. Mr. Tyagi walked 6 km to reach the station from his house, then he boarded a train whose average speed was 60km/hr and thus he reached his destination. In this way he took total of 3 hours. If the average speed of the entire journey was 32 km/hr then the average speed of walking is: A. 3 km/hr B. 4.5 km/hr C. 4 km/hr D. Can't be determined E. None of these

1. a

Solution

Probability of A passing the exam = 2/5

Probability of A failing the exam = 1 - 2/5 = 3/5

Probability of B passing the exam = 2/3

Probability of B failing the exam = 1 - 2/3 = 1/3

Therefore, probability of at least one of them failing the exam

= (2/5)(1/3) + (3/5)(2/3) + (3/5)(1/3)

= 11/15

Alternate method:

Probability of at least one of them failing the exam = 1 - probability of both of them passing the exam = 1 - (2/5)(2/3)

= 11/15

2. B

11. Interest earned on scheme P = $\frac{1}{3}$ x interest earned on scheme Q

Then , $\frac{20000\,x\,(x+5)\,x\,(x+2)}{100}$

$= \frac{1}{3} \times \frac{25000\,x\,(x+9)\,x\,(x+5)}{100}$

$= 4(x+2) = \frac{5}{3} \times (x+9)$

$12x + 24 = 5x + 45$

$7x = 21$

$x = 3$ ans.

3. E

12. CP of article B = x

Then, CP of article A = 2x

Now, MP = (x+2x) x 120 = 3.6x

SP = 3x x $\frac{110}{100}$ = 3.3x

3.6x - 120 = 3.3x

0.3x = 120

x = $\frac{120}{0.3}$ = 400

CP of article A = 2 x 400 = ₹800 ans.

4. A

13. Work done by B and C together in 1 day = $\frac{7}{120}$

Work done by B and C together in 5 days = $\frac{7}{120}$ x 5 = $\frac{7}{24}$ unit

Remaining work = 1 - $\frac{7}{24}$ = $\frac{17}{24}$

Remaining work can be completed by A in 17 days then, $\frac{17}{24}$x = 17

So, x = 24

So, A can complete the work in 24 days

Work done by B in one day = $\frac{3}{40} - \frac{1}{24} = \frac{9-5}{120} = \frac{1}{30}$

Work done by C in one day = $\frac{7}{120} - \frac{1}{30} = \frac{7-4}{120} = \frac{1}{40}$

Work done by A,B and C together in one day = $\frac{1}{24} + \frac{1}{30} + \frac{1}{40}$ =

$\frac{5+4+3}{120} = \frac{1}{10}$

Hence, A,B and C together can complete the work in 10 days.

5) a

17*R*4+20*(R+4)*4=2688

R=16

(R+4)%=20%

Compound interest=11/25*3500=Rs1540

6) b

Ratio of investments of Aman and Pooja=6:7

Ratio of time=2:3

Ratio of profit=6*2:7*3=4:7

4units–Rs5600

11units–Rs15400

Required profit=Rs15400

7) a

Milk in mixture A=357ml

Water in mixture A=306ml

Milk in mixture B=(x+43)ml

Water in mixture B=(x–6)ml

(400+x)/(300+x)=6/5

x=200

Required quantity of mixture B=243+194=437ml

8) d

SIof1year=Rs960

Rate of interest=153.6/960*100%=16%

16%ofP=960

P=Rs6000

9. Option B

Total number of boys = x

number of girls = x – 4

the number of boys = 630/45 = 14

the number of girls = 14 – 4 = 10

probability = 14C1 * 10C1 / 24C2

= 14 * 10 * 2/24 * 23 = 35/69

10. Option A

Let speed of boat = x km/hr

speed of stream = y km/hr

downstream speed = x + y

upstream speed = x – y

new speed of boat = x + 12

upstream speed = x + 12 – y

2 (x – y) = x + 12 – y

x – y = 12

upstream speed = 12

time taken by boat to cover 84 km in upstream 84/12 = 7

time taken by boat in downstream = 10 – 7 = 3

downstream speed = 84/3 = 28 km

time taken by boat to cover 140 km in downstream = 140/28 = 5 hours

11. Option D
Investment of A = (x + 500)* 6 + (x + 500)* .6 * 6 = 6(1.6x + 800)
investment of B = (x – 1000) * 12
profit of A = 2800
profit B = 4800 – 2800 = 2000
6(1.6x + 800)/(x – 1000)12 = 2800/2000
8x + 4000 = 14x – 14000
x = 3000
12. Solution
Let the initial quantity of water in the mixture = 'y' liters
Then, initial quantity of alcohol in the mixture = (y + x – 80) liters
So, y + (y + x - 80) = x + 136
Or, 2y + x – 80 = x + 136
Or, 2y = 216
Or, y = 108
So, initial quantity of alcohol in the mixture = x + 136 – 108 = (x + 28) liters
After removing (x – 48) liters of the mixture, total quantity of the mixture = x + 136 – x + 48 = 184 liters
After adding 26 liters of water to this mixture, total quantity of the mixture = 184 + 26 = 210 liters.
So, final quantity of water in the mixture = 210 × (7/15) = 98 liters
So, quantity of water in the mixture before adding 26 liters of water = 98 – 26 = 72 liters
Quantity of alcohol in the mixture before adding 26 liters of water = 210 × (8/15) = 112 liters
Or, 72:112 = 108 :(x + 28)
Or, 9:14 = 108 :(x + 28)
Or, x + 28 = (108 ÷ 9) × 14 = 168
Or, x = 168 – 28 = 140
Hence, option a.
13. Solution
Speed of the man = 18 × (5/18) = 5 m/s
Let the length of the train = 'x' metres
Total distance covered by the train in 12 seconds = x + (distance covered by the man in 12 seconds)
= x + 5 × 12 = (x + 60) metres
Total distance covered by the train in 16 seconds = (x + 208) metres
So, distance covered by the train in (16 – 12) seconds = x + 208 – x – 60 = 148 metres
So, speed of the train = 148/4 = 37 m/s
Speed of the car on flat roads = 37 + 3 = 40 m/s
Speed of the car on downhill roads = 40 × (112.5/100) = 45 m/s = 45 × (18/5) = 162 km/h
Total time taken for the car travel 243 km in downhill = (243/162) = 1.5 hours
Hence, option e.
14.Solution
ATQ;
$(x + 1775) \times (140/100)^2 = (x) \times (120/100)^4$
Or, $(x + 1775) \times (140/100)^2 = (x + 1775) \times (7/5)^2$
Or, $(x + 1775) \times (7/5)^2 = (x + 1775) \times (49/25)$ = Rs. {(49x/25) + 3479}
So, $x \times (120/100)^4$ = Rs. (1296x/625)
Now, (1296x/625) = {(49x/25) + 3479}
Or, (1296x/25) = (49x + 86975)
Or, 71x = 86975 × 25
Or, x = (86975/71) × 25 = 30625
So, total amount invested in both the schemes = 30625 + 30625 + 1775 = Rs. 63,025
Hence, option e.
15.Solution
Let the cost price of article 'A' = Rs. 'X'
Then, cost price of article 'B' = Rs. (X + 120)
ATQ;
X × (132.5/100) = (X + 120) × (125/100)
Or, (132.5X/100) = (125X/100) + 150
Or, 132.5X – 125X = 15000
Or, X = 15000/7.5 = 2000
So, cost price of article 'C' = (2000 + 2120)/2 = Rs. 2060
Marked price of article 'C' = 2060 × (150/100) = Rs. 3090
So, selling price of article 'C' = 3090 × (80/100) = Rs. 2,472
Hence, option c.
16.Solution
Let the number of boys in class 'A' = '6x'
Then, number of girls in class 'A' = '7x'
Let the number of girls in class 'B' = '13y'
Number of boys in class 'B' = '12y'
ATQ;
6x:12y = 3:4
Or, 12y = 8x
Or, 13y = 26x/3
So, (50 × 8x) + {45 × (26x/3)} = (40 × 6x) + (44 × 7x) + 726
Or, 400x + 390x = 240x + 308x + 726
Or, 790x – 548x = 726
Or, x = (726/242) = 3
So, number of boys in class 'A' = 6x = 18
Total weight of boys in class 'A' = 18 × 40 = 720 kg
Number of boys in class 'B' = 8x = 24
Total weight of boys in class 'B' = 24 × 50 = 1200 kg
Required sum = 720 + 1200 = 1920 kg
Hence, option e.
17.Solution
Assume that the 5 boys together occupy 1 seat and the 3 girls each occupy 1 seat.
Then, number of ways of arranging these 4 seats = 4! = 24
5 boys can be seated among themselves in 5! Ways = 120 ways
Within the 5 boys, number of ways of seating 2 persons wearing red shirt together = 4 × 2 = 8
And, rest 3 boys can be seated in 3! = 6 ways
Total number of arrangements in which two boys wearing red shirt sit together = 8 × 6 = 48
Required number of ways = (120 – 48) × 24 = 1728
Hence, option b.
18.Solution
ATQ;
x + (x + 1) + (x + 2) + (x + 3) + (x + 4) = 5x + 10 = 850
Or, x = 840/5 = 168
So, a = 78
L.C.M of 78, 299 and 1222 = 84318
Hence, option b.
19. Answer: C
Using I
The total number of runs scored in first 50 innings = (50 * 40) = 2000
The average for the next 20 innings = 22.50
The total number of runs scored in next 20 innings = (20 * 22.50) = 450
So, the total number of runs scored in 70 innings = (2000 + 450) = 2450
The overall average = (2450/70) = 35
So, (i) is satisfied.
Using II
The total number of runs scored in first 30 innings = (30 * 40) = 1200
The average for the next 20 innings = 25

The total number of runs scored in next 20 innings = (20 * 25) = 500
So, the total number of runs scored in 50 innings = (1200 + 500) = 1700
The overall average = (1700/50) = 34
So, (ii) is not satisfied.
Using (iii)
The total number of runs scored in first 60 innings = (60 * 40) = 2400
The average for the next 20 innings = 16
The total number of runs scored in next 20 innings = (20 * 16) = 320
So, the total number of runs scored in 80 innings = (2400 + 320) = 2720
The overall average = (2720/80) = 34
So, (iii) is satisfied.
Therefore, both (i) and (iii) follow.
Hence, the correct answer is option C.

20. Answer: C
Ratio of milk and water in vessel R = 78:22 = 39:11
On adding 102 ml water, then ratio of milk and water becomes = 1/2
So,
39a / (11a + 102) = 2/1
39a =(11a + 102) x 2
Value of a = 204/17 = 12
So, amount of milk in vessel R initially = 39 x 12 = 468 ml
Amount of water in vessel R initially = 11 x 12 = 132 ml
Ratio of milk and water in vessel P = 6:1 = 6b, b
Amount of milk and water in vessel Q = 3:2 = 3c, 2c
Now,
6b + 3c = 468
2b + c = 156…….. (1)
b + 2c = 132……. (2)
on solving both equations, we get
3c = 108
Value of c = 36, b = 60
So, (6 x 60 + 60) = 4M + 100
Value of M = 320/4 = 80
(2.5N + 55) = 5c = 5 x 36 = 180
Value of N = 125/2.5 = 50
Required difference = 80 – 50 = 30
Hence answer is option C
21. Answer: E
Let speed of boat in still water = a km/hr
Let speed of stream = b km/hr
From the point when dog falls down, the dog is floating towards P with the speed of stream and after 40 minutes, when Arun realized, distance = (a – b + b) x 40/60 = 2a/3 km
Now, Arun changes his direction, both dog and Boat are in same direction, and distance between them is 2a/3 km.
Required time taken to catch the dog = 2a/ [3 * (a + b – b)] = 2/3 hours
So, total travelling time of Dog = 2/3 + 2/3 = 4/3 hours
So, speed of dog = speed of stream = 40/ (4/3) = 30 km/hr
We can find speed of stream only, not speed of boat in still water
Hence answer is option E
22. Answer: B
Ratio of efficiency of P and Q = 3:5
P and Q worked in alternate manner, on first day and on last day P worked.
Let number of days for which Q worked = a days
So, number of days for which P worked = (a + 1) days
Total number of days required to complete the work in alternate manner = 2a + 1
Now,
5 x a + 3 x (a + 1) = 3 x (2a + 1 + 40/3)
8a + 3 = 6a + 43
2a = 40
So, value of a = 20
Total work = 5 x 20 + 3 x 21 = 163 units
Now,
(N + 43/8) = 163/8
Value of N = 120/8 = 15
Hence answer is option B
23. Total cost incurred = (600 × 40,000) + (500 × 35,000) = 24000000 + 17500000
= 41500000 = 41.5 million [1 million = 1000000]
Total units = 600 + 500 = 1100
Total Revenue = 1100 × 50,000 = 55 million.

$$\text{Profit\%} = \frac{\text{Revenue} - \text{Cost}}{\text{Cost}} \times 100$$

$$= \frac{55 \text{ million} - 41.5 \text{ million}}{41.5 \text{ million}} \times 100$$

$$= \frac{13.5}{41.5} \times 100 = 32.5\%$$

Hence, option A is correct.

24. Since B computes actual profit on S.P., actual profit for B = 25% of 1000 = Rs. 250 Since A computes actual profit on C.P., C.P. for A = 1000/1.25 = Rs. 800
∴ Actual profit for A = 25% of 800 = Rs. 200
∴ Required difference = 250 – 200 = Rs. 50
Hence, option D is correct.
25. Total distance = 32 × 3 = 6 + 60 × x
⇒ x = 1.5 hours
Thus, the speed of walking = 6/1.5
= 4 km/hr.
Hence, option (C) is correct.