CSAT TEST (SOLUTIONS)

Q1. Ans: C

Let there are n natural numbers and 'x' be the number missed out.

Now, n(n+1)/2 = 177 + x n(n+1) = 354 + 2xFrom the given options only x = 13 satisfies it 19 (19+1) = n(n+1) = 354 + 2 (13) = 380Hence, answer is option (c).

Q 2. Ans: C

For numbers between 501 to 599 which have 6 as digit are 506, 516, 526, 536, 546, 556, 560, 561, 562, 563, 564, 565, 566, 567. 568, 569, 576, 586 and 596 Total 6 occurs = 20 times. Number of times 6 occurs from 600 to 699 = 100 + 20 = 120Total number of required 6 = 20 + 120 = 140**Hence, answer is option (c).**

Q3. Ans: C

[C does not have more money than A and D together have]

A pays Rs.20 to B. Remaining amount with A = Rs.80 New amount of B = Rs.120 Now, B pays Rs.10 to C. Remaining amount with B = Rs.110 New amount of C = Rs.110 Now, C gets Rs.30 from D. C = Rs.140D = Rs.70B = Rs.110A = Rs.80C is the richest, D is the poorest and B is richer than D.

C has Rs.140 while A and D together have Rs.150.

Therefore, C does not have more money than A and D together have.

Hence, answer is option (c).

Q 4. Ans: A

 $2^{m}-2^{n} = 960$ $2^{n}(2^{m-n}-1) = 2^{6}(15)$ $2^{n}(2^{m-n}-1) = 2^{6}(15)$ $2^{n}(2^{m-n}-1) = 2^{6}(2^{4}-1)$ $\Rightarrow n=6 \text{ and } m-n=4$ m = n + 4 m = 6 + 4 m = 10Hence, answer is option (a).

Q 5. Ans: C

 3^4 gives unit digit 1 So, $(3^4)^{500}$ gives unit digit 1 And, 3³ gives unit digit 7 \therefore (13)²⁰⁰³ gives unit digit = (1 × 7) = 7 Hence, answer is option (c).

Q 6. Ans: C

Here in x^{4n} 'n' is a positive integer and x is an even number. Let us assume x = 10; 10^{4n} always end in 0. But for other positive values of x i.e. 2, 4, 6.... will always have 6 in units place for all even number. Thus, the unit's place digit is always either 0 or 6.

Hence, answer is option (c).

Q 7. Ans: B

Let three-digit numbers be ABC where A, B and C are the three digits.

Now, we know that a number is divisible by 11 if the difference between the sum of its digits in odd positions and the sum of its digits in even positions is either 0 or divisible by 11.

So, A + C - B = 0

 $\mathbf{A} + \mathbf{C} = \mathbf{B}$

Therefore, the correct answer is option b, as the number is always divisible by 11.

Hence, answer is option (b).

Q8. Ans: A

[(m + n) is not divisible by 10]

Take m = 25 and n = 10 (each one is divisible by 5) But m + n = 25 + 10 = 35 which is not divisible by 10 Hence, (m + n) is not divisible by 10. **Hence, answer is option (a).**

Q 9. Ans: D

Factors of $80 = 2 \times 5 \times 8$ 653xy is divisible by 2 and 5 for, y = 0 i.e. 653×0 Now for the number to be divisible by 8; last 3 digits should be divisible by 8 So, x can be either 2 or 6 since 320 and 360 are divisible by 8 For x = 2; then the number becomes 65320 which is not divisible by 80 For x = 6; then the number becomes 65360 which is divisible by 80 Hence the value of x = 6So, x + y = 6Hence, answer is option (d). **Q 10.** Ans: C Here n is whole number greater than 1. Now, given that $n^2(n^2-1) = n^2(n-1)(n+1)$ for n = 2. now put it given expression $n = 2^{2}(2+1) (2-1) = 4 \times 3 \times 1 = 12$ Hence, the expression always will be divisible by 12

Q 11. Ans: D

We can write 4^{61} as $4 \times (256)^{15}$ Now, we know that $(a^n - b^n)$ is divisible by (a - b) for all values of n. $(256^{15} - 1)$ is divisible by (256 - 1) i.e., 255 and hence by 51 By dividing $(256)^{15}$ by 51, we get 1 as remainder By dividing 4^{60} by 51, we get 1 as remainder By dividing 4^{61} by 51, remainder obtained = $(4 \times 1) = 4$ **Hence, answer is option (d).**

Q 12. Ans: A

When 2^{256} is divided by 17 then, $2^{256} = (2^4)^{64} = (17 \cdot 1)^{64}$ In the expansion of $(17 - 1)^{64}$, every term is divisible by 17 except $(-1)^{64}$. Hence remainder is 1. **Hence, answer is option (a).**

Q 13. Ans: C

For the minimum number of rows, the numbers of trees in each row must be the maximum. Number of trees in each row = HCF (21, 42, 56) = 7 Number of rows = (21+42+56)/7=119/7=17

Hence, answer is option (c).

Q 14. Ans: B

Breadth = 3.78m = 378cmLength = 5.25m = 525cmNow, we have to find H.C.F of 378 and 525 $378 = 2 \times 3 \times 3 \times 3 \times 7$ $525 = 5 \times 5 \times 3 \times 7$ H.C.F = $3 \ge 7 = 21$ Hence, the largest size of square tiles is 21cm. **Hence, answer is option (b).**

Q 15. Ans: C

By using any two statements, we can get the number of days required by A and B and then we can find the number of days required by A and B together to complete the work. **Hence, answer is option (c).**

Q 16. Ans: C

Total work LCM (8, 10, 12) = 120 units Efficiencies of (A + B), (B + C) and (A + C) are 15, 12 and 10 respectively. Efficiency of (A + B + C) = 37/2Efficiency of B = A + B + C - (A + C) = 37/2 - 10Number of days taken by B alone to complete the work = Total work / Efficiency of B Hence, All I, II and III are required for the answer. Hence, answer is option (c).

Q 17. Ans: C

1 day work of 1 man and 1 woman = 1/6 + 1/9 = 5/18Remaining work = (1 - 5/18) = 13/18Work done by 1 boy in 1 day = 1/18 Number of boys required = $(13/18 \times 18) = 13$ Hence, answer is option (d).

Q 18. Ans: C

Let A and B do the work in x and y days respectively Now work done by A in 2 days and B in 9 days = 1 2/x + 9/y = 1Similarly, 3/x + 6/y = 1Let 1/x = a and 3/y = bThen the equations become 2a + 9b = 1(i) 3a + 6b = 1(ii) By multiplying eqn. (ii) x 2 - (i) x 3 we get (6a + 12b) - (6a + 27b) = 2 - 3b = 1/15 and x = 15By putting the value of b in (i) $2a + 9 \times 1/15 = 1$ \Rightarrow 2a = 1 - 3/5 = 2/5 a = 1/5 and y = 5Hence, answer is option (c).

Q 19. Ans: D

Let the tank be emptied in p hrs. after 8 a.m. Tank filled by pipe in x hours = p/15Tank filled by second pipe in (p - 1) hours = (p - 1)/12Tank emptied by third pipe in (p - 3) hours = (p - 3)/4 p/15 + (p - 1)/12 - (p - 3)/4 = 0 4p + 5(p - 1) - 15(p - 3)60 = 0 -6p + 40 = 0 p = 40/6 = 62/3 hrs or 6 hrs 40min Thus, the tank will be emptied at 2 : 40 p.m. **Hence, answer is option (d).**

Q 20. Ans: C

Suppose pipe A alone takes p hours to fill the tank. Then, pipes B and C will take p/2 and p/4 hours respectively to fill the tank.

 $\frac{1/p + 2/p + 4/p = 1/5}{\Rightarrow 7/p = 15}$ $\Rightarrow p = 35 \text{ hrs.}$ Hence, answer is option (c).

Q 21. Ans: D

First day is Wednesday means third day is Friday. Now, other Fridays – 10, 17, 24. According to C, B's birthday is after 18th September And according to D, B's birthday is before 28th September and is on a Friday. Thus, B's birthday is on 24th September. **Hence, answer is option (d).**

Q 22. Ans: D

We shall find the day on 1st April, 2001 = (2000 years + Period from 1.1.2001 to 1.4.2001) Odd days in 1600 years = 0 Odd days in 400 years = 0



Jan + Feb + March + April = (31+28+31+1) = 91days i.e. odd days = 0 Total number of odd days = (0 + 0 + 0) = 0On 1st April, 2001 it was Sunday. In April, 2001 Wednesday falls on 4th, 11th, 18th and 25th. **Hence, answer is option (d).**

Q 23. Ans: C

Total time interval from 9 a.m. on Monday to 8:30 p.m. on Wednesday = 48 hrs + 11:30 = 59 hrs. 30 min or 119/2 hrs. Clock is losing 12 mins. In 24 hrs. i.e. 24 hrs. - 12 min = 119/5 hrs. Now, $(119/2) \times (24/119) \times 5 = 60$ hrs. Now, 60 - 119/2 = 1/2 = 30 mins Correct time = 30 min + 8:30 p.m. = 9 p.m.

Hence, answer is option (c).

Q 24. Ans: D

In 24 hours clock gains = 10 minutes In 1 hour = 10/24 min. Number of hours when clock indicate 3 pm on the following day = $29 \times 10/24 = 12$ minutes Hence, Right time = 12 minutes to go to 3 P.M. = 2:48 p.m. Hence, answer is option (d).

Q 25. Ans: B

Angle traced minutes hand in 20 minutes = $20 \times 360/60$ = 120°

Hour hand traces 1/2 degree in one minute.

Angle traced by hour hand in 4:20 minutes = $4 \times 30 + 20/2$ = 130°

Hence, angle between two hands = $130 - 120 = 10^{\circ}$ Hence, answer is option (b).

Q 26. No option is correct

Let's A complete the work in 'a' day and B complete the work in 'b' days a/4 + 3b / 4 = 20.....(i)3a/4 + b/4 = 32.....(ii)From these equations We have a = 38 days **No option is correct**

Q 27. Ans: C

A in 1 day can complete 1/30 of the work B in 1 day can complete 1/20 of the work Together, in 1 day. A and B can complete 1/30+1/20=1/12 of the work Therefore, they will complete the work together in 12 days. **Therefore, the correct answer is (c)**

Q 28. Ans: B

A completes the task in 20 days, So, A's daily work rate is 1/20 Let B's completion time be x days, making B's daily work rate 1/x When they work together, their combined daily work rate is 1/20+1/x

Given they finish the work in 12 days, So, Equation is 12(1/x+1/20) = 1Solving, we find B alone can complete the task in 30 days. By doing half the work daily B will do it in 60 days. B doing half the work daily Now 1/20 + 1/60 = 1/15So. They will do it in 15 days **Therefore, the correct answer is (b)**

Q 29. Ans: C

Assume total work = 50 units The efficiency of A and B together will be 5 units And the efficiency of C = 1 unit A = B + C A+B=5 A= 5-B => B+B+C=5 => 2B+C=5Putting C= 1 we get B = 2 We find that B's efficiency alone is 2 units Thus, B can complete the work in 25 days **Therefore, the correct answer is (c)**

Q 30. Ans: B

Assume A worked for x days, B worked for x + 12 days. Together, they completed the work. Their combined rates are x/12+(x+12)/20=1Solving for x, We have x=3 days. **Therefore, the correct answer is (b)**

Q 31. Ans: D

From the statements I and II 6 men in 12 days will do 3/10 work So, 10 women will 7/10 work in 12 days Because the number of women and Number of men is dependent on each other to complete the work So, none of the statements is sufficient to answer the question **Therefore, the correct answer is (d)**

Q 32. Ans: A

(i) yes, the product of two irrational numbers must be a rational number If both the numbers are equals examples $\sqrt{2} \times \sqrt{2} = 2$ $\sqrt{3} \times \sqrt{3} = 3$ Therefore, the correct answer is (a)

Q 33. Ans: B

When determining if a number is divisible by 125, we focus on its last three digits.

Since a number divisible by 125 must have its last three digits divisible by 125

Examine these last three digits, represented as x + y + 5. Considering that the unit digit cannot be 0 (as even multiples of 125 would have this), we focus on odd multiples of 125.

For instance:

When x = 1 and y = 2, the number is 125, divisible by 125 When x = 3 and y = 7, the number is 375. divisible by 125 When x = 6 and y = 2, the number is 625. divisible by 125 When x = 8 and y = 7, the number is 875. divisible by 125 **Therefore, the correct answer is (b)**

Q 34. Ans: D

If we keep repeating a three-digit number to make a bigger number, that new number will be divisible (meaning you can divide it evenly) by the original three-digit number and any smaller numbers that divide into it evenly.

The answer we get when we divide the big number by the original three-digit number will always be 1001.

This is because 1001 can be split into 7 times 143,

and 143 can be split into 7 times 13 times 11.

So, the big number will also be evenly divisible by 7, 13, and 11.

Therefore, the correct answer is (d)

Q 35. Ans: A

When comparing the costs for 12 months and 9 months, we get the equation:

 $12 \times (\text{Rs } 1620 + \text{uniform}) = 8 \times (\text{Rs } 2500 + \text{uniform})$ 19440 + 12U = 20000 + 8U 4U = 560Thus, the price of the uniform (U) is Rs 140. **Therefore, the correct answer is (a)**

Q 36. Ans: D

Initially, the drum had 3/4 of its capacity filled with kerosene. After 30 litres were drawn, it was 7/12 of full. To find the total capacity (C) of the drum, $3/4 \times C - 30 = 7/12 \times C$ After solving, we get C=180. So, the drum's capacity is 180 litres. **Therefore, the correct answer is (d)**

Q 37. Ans: C

Both statements provide unique equations to determine the weight of each box, resulting in a consistent solution of 6 kg per box.

Consequently, both statements, individually, are adequate to ascertain the total weight of the boxes.

Therefore, the correct answer is (c)

Q 38. Ans: D

Difference = (0.70z) - (0.60z)Difference = 0.10zSo, the difference between p and q is 0.10z. This means that p is 10% greater than q in terms of the variable z.

Therefore, the correct answer is (d)

Q 39. Ans: A

The day after tomorrow is Sunday which means today is Friday

Three days ago was Tuesday not Wednesday if today is Friday.

Therefore, the correct answer is (a)

Q 40. Ans: D

Statement I gives us the day of the week for Sarah's birthday this year, but without knowing it is in January, February or after February, this year is a leap year or not, we can't accurately predict the day of the week for her birthday next year.

Statement II tells us about next year's leap year status. This is not enough to conclude the exact day

So, neither statement is sufficient to determine the day of the week for Sarah's birthday next year.

Therefore, the correct answer is (d)

Q 41. Ans: A

The angle between the hour hand and the minute hand is = $11 \times m/2 - 30$ H Angle = 900 and hour = 2 90 = $11 \times m/2 - 30 \times 2$ m = 300/11 = (27 + 3/11)Hence, at (27 + 3/11) past 2 the minute hand is 90 degrees. Hence, the correct answer is (27 + 3/11) minutes past 2. **Therefore, the correct answer is (a)**

Q 42. Ans: D

There is no possibility of the minute and hour hands coinciding between 11 and 12. They will only align precisely at 12 o'clock.

Therefore, the correct answer is (d)

Q 43. Ans: C

I. Today is Monday, implying yesterday was Sunday, a weekend day.

II. Two days from now will be Wednesday, indicating today is Monday and yesterday being Sunday, was a weekend day.

Therefore, the correct answer is (c)

Q 44. Ans: A

The month starts on a Saturday.

There are four Fridays, five Saturdays and Five Sundays, in a month with 30 days.

Therefore, the correct answer is (a)

Q 45. Ans: C

I. If Today is a Tuesday, then the day after tomorrow will be Thursday

II. The day before yesterday was a Sunday, which means today is Tuesday the day after tomorrow will be Thursday **Therefore, the correct answer is (c)**

Q 46. Ans: D

From Statement I:

Given the next month has only 30 days. Then the current month has 31 days,

Not enough to determine when is the Friday

From statement II:

If the 13th falls on a Monday, we can count forward to find the next Friday.

If the 13th is Monday, then the 17th will be Friday but we do not know the

the present day or date.

None of the statements is sufficient to answer the question because next Friday is dependent on the present-day and date

Therefore, the correct answer is (d)

Q 47. Ans: B

Angle = $30 \times H - (11 \times M/2)$ where H= hour hand, M= Minute hand. So, at 12:10 Angle = $30 \times 12 - (11 \times 10/2)$ 360 - 55 = 305 degree **Therefore, the correct answer is (b)**

Q 48. Ans: A

The hour hand completes 360 degrees in 12 hours, which is 360/12 = 30 degrees per hour. Therefore, after the hour hand has moved 165 degrees, it has covered 165/30 = 5.5 hours. In 5 and a half an hour's hand will move 165 degrees so, after 2:00 the time will be 7:30 **Therefore, the correct answer is (a)**

Q 49. Ans: B

The month starts with Saturday the first Friday would be on the 7th Therefore, the second Friday would be the 14th. The third day after the second Friday(14th) = 17th. **Therefore, the correct answer is (b)**

Q 50. Ans: D

Given the value of the remainder is 26 this mean divisor (D) will be greater than 26 Option(a) 62 (which is also greater than 26) satisfies these

Conditions but there may be other values as well Therefore, the correct answer is (d)



ANSWER KEY

1.	С
2.	С
3.	С
4.	А
5.	С
6.	С
7.	В
8.	А
9.	D
10.	С
11.	D
12.	А
13.	С
14.	В
15.	С
16.	С

17.	D
18.	С
19.	D
20.	С
21.	D
22.	D
23.	С
24.	D
25.	В
26.	No option is correct
27.	С
28.	В
29.	С
30.	В
31.	D
32.	А

33.	В
34.	D
35.	А
36.	D
37.	С
38.	D
39.	А
40.	D
41.	А
42.	D
43.	С
44.	А
45.	С
46.	D
47.	В
48.	А
49.	В
50.	D









