# Date Interpretation Questions for IBPS PO Mains, SBI PO Mains and RBI Grade B Exams.

Directions: Study the following pie chart carefully and answer the questions given beside.

Packaging unit of a factory has 5 stages namely Stage - P, Q, R, S and T. The pie chart 1 shows the time distribution of each stage to be finished by any factory worker.

Pie Chart - 1
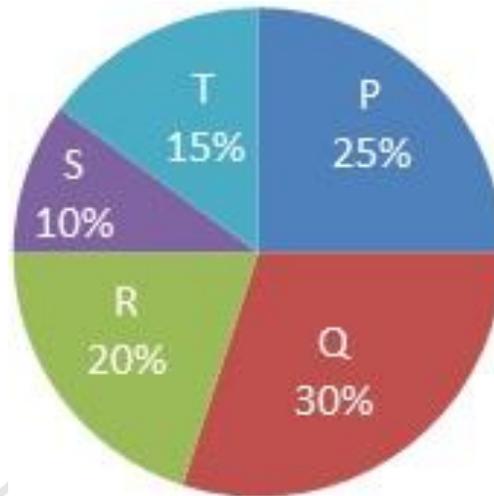
The pie chart 2 shows the time in degrees that a particular factory worker will take to finish stage – P out of total time by all the factory workers together to finish stage-P.

Pie Chart – 2 (in degrees)
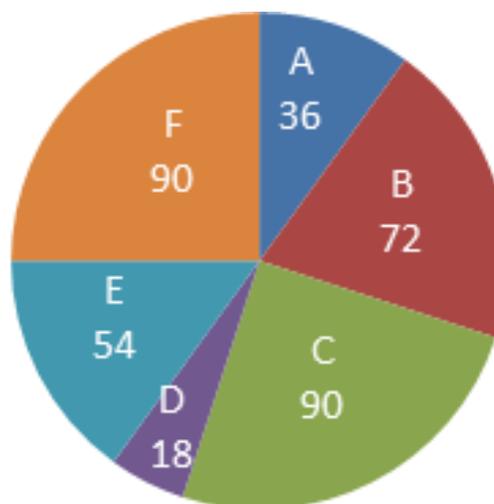
Note : Each person has constant efficiency for all the parts of the work unless mentioned.

1. **How many stages of the packaging will be completed by E if he works alone for the same number of minutes taken by A, B, C, D, and F together to complete the whole work? E starts working from stage S.**

A. 0   B. 1   C. 2   D. 3   E. All the stages

2. **If all the six persons work together then they can complete the packaging of one unit in 90 minutes. Suppose for the first 48 minutes all work together but after 48 minutes, A, C, and E left the work. Find how long the packaging of one unit took to complete.**

A. 102 minutes   B. 112 minutes   C. 132 minutes   D. 84 minutes   E. 126 minutes

3. **All the six workers started working together but they were divided into two parts. D and E work together to complete stage-Q, and rest of them work together to complete Stage-R. Find in how many minutes they will complete stages Q and R if B alone can complete stages Q and R in 160 minutes?**

A. 96 minutes   B. 102 minutes   C. 112 minutes   D. 80 minutes   E. 116 minutes

4. **Suppose, all of them started working together to complete the whole work but, after 18 minutes from starting, A left the work, after next 16 minutes B left the work, again after next 12 minutes C left the work. Then D left after 10 minutes. E and F work till the completion of work. In this way, the work is completed in 120 minutes. Find the number of minutes C would have taken if he had worked alone?**

A. 179.6 minutes   B. 212.8 minutes   C. 248.4 minutes   D. 279.6 minutes   E. 291.5 minutes

5. **If all of the six persons work together then they can complete the stage-P of in 125 minutes. Find the difference between the number of minutes taken by them if A, B, and C work together separately, and D, E, and F work together separately to complete all the stages?**

A. 212 minutes   B. 202 minutes   C. 152 minutes   D. 224 minutes   E. 182 minutes

SET – 2

The multi-layered pie-chart below shows the sales of refrigerator for a big retail electronics outlet during 2015 and 2016. The outer layer shows the monthly sales during this period, with each label showing the month followed by sales figure of that month. For some months, the sales figures are not given in the chart. The middle-layer shows quarter wise aggregate sales figures (in some cases, aggregate quarter-wise sales numbers are not given next to the quarter). The innermost layer shows annual sales. Below some information regarding sale is given:

1. In January (2016), there was increase in sale of 60% and from January (2015) while in February (2016), there was decrease in sale of 25% from February (2015).

2. Sale in March (2015) was 79.2% of sale in March (2016) and ratio of sale in April (2015) to sale in April (2016) was 6 : 7.

3. Sale in Q2 of 2016 was 312 more than sale in Q2 of 2015.

4. There was 20% increase in sale from August, 2016 to September, 2016.

5. Sale in November, 2016 was 60 less than twice the sale in December, 2016.

6. **During which quarter, was the percentage increase in sale from previous quarter maximum in 2015?**

A. From Q1 to Q2   B. From Q2 to Q3   C. From Q3 to Q4   D. None of these   E. Can't say

7. **What was the total number of refrigerator sold in year 2016?**

A. 7418   B. 7687   C. 7542   D. 7557   E. 7627

8. In which month of 2015, was the maximum number of refrigerator sold?

A. May   B. November   C. August   D. December   E. July

9. In which quarter of 2016, was the percentage increase/decrease in sales from the same quarter of 2015 the highest?

A. Q1   B. Q2   C. Q3   D. Q4   E. None of these

10. In which month of 2016, was the lowest number of refrigerators sold?

A. December   B. February   C. March   D. July   E. September

SET – 3

Directions: Study the following tab le chart carefully and answer the questions given beside.

The missing table below shows the wallet of different colours Black, Red, blue and white sold by four different shopkeepers A, B, C and D.

	Black wallet	Red wallet	Blue wallet	White wallet	Total
A	120	–	140	–	590
B	225	165	–	45	–
C	–	80	330	–	850
D	–	195	70	170	–
Total	700	585	–	660	2705

11. If each black wallet, each red wallet, each blue wallet and each white wallet sold by shopkeeper A was Rs. 80, Rs. 60, Rs. 50 and Rs. 40 respectively then what was the amount generated by shopkeeper A after selling the wallets?

A. Rs. 30500   B. Rs. 32700   C. Rs. 33200   D. Rs. 31600   E. Rs. 38700

12. What is the total wallet sold by D?

A. 610   B. 520   C. 680   D. 570   E. 540

13. What is the ratio of white wallet sold by A to red wallet sold by C?

A. 22 : 7   B. 37 : 16   C. 32 : 21   D. 19 : 11   E. 11 : 8

14. **C gives discount on some wallet. 20% of black wallet, 30% of red wallet, 10% of blue wallet and 15% of white wallet sold at discount. Find total wallet sold at discount by C.**

A. 152   B. 128   C. 132   D. 108   E. 116

15. **Which of the following is correct?**

A. Black wallet sold by C is 150   B. Blue wallet sold by B is 240   C. Total wallet sold by B is 665
D. Red wallet sold by A is 145   E. Total white wallet sold by all four is 680.

SET – 4

It's a description about four friends Ram, Arun, Tahir, and Karan. They all go for running in parks near their society. Total three table charts show related information.
Name of the parks and the length of tracks on which they run. All tracks are circular.

Table-1

Name of the park	Length of tracks(meter)
Sector-1 (S-1)	400
Sector-2 (S-2)	300
Sector-3 (S-3)	500
Sector-4 (S-4)	250
Sector-5 (S-5)	600

Number of trips they make and time to make all correspondingly mentioned trips.

Table-2

	Monday		Tuesday		Thursday		Friday	
	Trips	time(min)	Trips	time(min)	Trips	time(min)	Trips	time(min)
Ram	6	10	4	12	8	16	4	10
Arun	3	10	4	18	6	15	5	20
Tahir	5	10	5	15	7	21	4	16
Karan	2	8	6	12	5	20	3	12

Note: On a particular day, no two person will go to same park until the question says so. Speed of any of them could be same or different any day in any park. Don't assume same as previous day until question says so.

Weekly plan for who will go to which park on a particular day.

Table-3

	Monday	Tuesday	Thursday	Friday
Ram	__	S-3	S-4	S-4
Arun	__	S-5	S-2	S-3
Tahir	__	S-1	S-3	S-5
Karan	__	S-2	S-5	S-1

16. The options show name of all the person along with the park in which he ran. Out of the given options, which combination would be such that all the four person ran with same speed in their respective park on Monday?(Answer to this question will fill blank space in table-3.)

A. Ram – S-1, Arun– S-3, Tahir– S-5, and Karan– S-4   B. Ram – S-2, Arun– S-1, Tahir– S-3, and Karan– S-4
C. Ram – S-4, Arun– S-3, Tahir– S-5, and Karan– S-2   D. Ram – S-4, Arun– S-3, Tahir– S-2, and Karan– S-5
E. None of these

17. Consider they plan a game for a week. Nothing will be changed in this game except for assigning a sequence of running. In this game, all are connected through electronic device, and when the first person stops in his park after making the planned trips for that day, the second person starts on knowing it through the device in whichever park he is, and when the second stops after making all the planned trips for that day, the third starts, and so on. Assume time consumed in passing the information is negligible. If we divide the total distance all the four persons ran on a day with total time they took to finish this game on that day we get a number, call it 'common speed'. On which day the common speed is lowest?

A. Tuesday   B. Monday   C. Friday   D. Thursday   E. B and C both

18. They all decide to run on same track on Saturday. This is a new track and its length is 1000meters. Ram and Tahir run with speeds with what they ran on Tuesday while Arun and Karan run with speed with what they ran on thursday. They all start together from same line and stop after 5 minutes. The point where they stop is noted and the distance from this point to the other end of the track is measured for all the four persons. Average of these measurement would be?

A. 287.5 meter   B. 275.5 meter   C. 257.5 meter   D. 387.5 meter   E. None of these

19. They plan running on Wednesday. Ram and Karan exchanged their parks, and Tahir and Arun exchanged with each other. All of them ran for same time as they ran on Tuesday, and number of trips were also same as that on Tuesday. Means, if Ram make n trips on Tuesday in T minutes then he again made n trips on Wednesday in T mintues. Which of the options give the best arrangement with respect to speed on Wednesday?

A. Karan > Tahir > Arun > Ram   B. Karan > Tahir > Ram > Arun   C. Tahir > Karan > Ram > Arun
D. Karan > Arun = Tahir > Ram   E. None of these

20. **For a week, Ram's younger brother also joins. He goes with Karan on Tuesday, with Ram on Thursday, and with Tahir on Friday. He is more energetic so makes one more trip for each two trips the person running with him makes. Time taken by both the people is equal. Means if Ram's brother goes with Tahir and Tahir run for T minutes then Ram's brother also run for T minutes. Choose the option which gives his average speed (approx.) for three the days.**

A. 211 meter/minute   B. 320 meter/minute   C. 361 meter/minute   D. 232 meter/minute
E. None of these

SET – 5

Some blood samples of COVID-19 from three districts A, B and C were taken. District A, B and C had 160, 200 and 240 villages, respectively and from each village of each district 100 blood samples were taken. Samples taken from were divided in 3 age groups which were below 20 years (20), 20 years to 40 years (20-40) and above 40 years (40). Out of total samples, 20% were of category 20, 50% were of category 20-40 and rest were of category 40.

The samples were further divided in two groups based on whether the samples were tested in government hospital (GH) or private hospital (PH). The table below gives the number of samples from different categories which were tested in government hospital.

Districts	Category 20	Category 20-40	Category 40
A	2840	4200	3650
B	2450	6600	1800
C	800	4800	4250

It is also known that:

• 17.5% of total samples were of category 20 from C. From C, number of samples tested in PH for category 20-40 and number of samples tested in PH for category 40 were same.

• From A, for the category 40, number of samples tested in GH was 82.5% more than number of samples tested in PH.

• Ratio of number of samples tested for category 20 from A to number of samples tested for category 20 from B was 19 : 20.

21. Find the difference between samples tested of category 20-40 in PH from A and samples tested of category 20-40 in PH from B.

A. 4165   B. 4325   C. 4175   D. 4425   E. 4215

22. If out of samples tested for category 40 in PH from B, 20% were found positive. How many samples were negative for category 40 in PH from B?

A. 185   B. 175   C. 220   D. 240   E. 135

23. What was the ratio of total samples tested for category 20 from B to total samples tested for category 40 from A?

A. 40 : 93   B. 80 : 113   C. 65 : 111   D. 32 : 59   E. 16 : 37

24. Out of total samples tested for category 20-40 from C, 5175 samples were of females. Number of samples of males tested for category 20-40 from C is what percent of samples tested in PH for category 40 from A?

A. 280%   B. 220%   C. 300%   D. 250%   E. 350%

25. Find the difference between number of samples tested in PH and number of samples tested in GH, for all three categories.

A. 26480   B. 23520   C. 28610   D. 25840   E. 29720

SET – 6

The villages of a district are classified into six categories, A through F, based on their population. The following table gives the number of villages in the district belonging to different categories in the years 2006 and 2016.

Category	Population	No. of Villages in 2006	No. of Villages in 2016	Ratio of no. of male to female	Number of Adults in population	Literacy rate among adults ×
A	< 200	104	92	5 : 3	60%	60%
B	200 – 500	141	127	2 : 5	50%	50%
C	501 – 1000	145	144	5 : 3	60%	40%
D	1001 – 2000	110	129	3 : 2	60%	40%
E	2001 – 5000	62	80	6 : 7	40%	80%
F	> 5000	13	18	8 : 7	64%	50%

The ratio of literacy for males to females in every category is the same as the ratio of population of males to females given in the table

26. **Find the population of category F village if 25% of adult female literate are doctors, 20% of rest adult female literate are engineers, 25% of rest of adult female literate are teachers and remaining 1008 of adult female literate are CA.**

A. 12000　　　　B. 16000　　　　C. 20000　　　　D. 24000　　　　E. 30000

27. **Find the average population of villages of category D in 2006 if there 15840 adult females are literate in category D from all the villages combined.**

A. 1200　　　　B. 1500　　　　C. 1800　　　　D. 2000　　　　E. 2400

28. **In 2016, find the total population in category B villages was at least what percentage of the total population in category E villages?**

A. 6.35%　　　　B. 6.75%　　　　C. 7.15%　　　　D. 7.25%　　　　E. 8.00%

29. **If the total population in category D villages in 2016 was less than that in 2006, find what could be the least possible average population of category D villages in 2006? (approx)**

A. 1165　　　　B. 1174　　　　C. 1192　　　　D. 1204　　　　E. 1222

30. **In village of category A, consider all the villages have equal population. Find what could be the maximum number of employed women in percentage among all adults if only literate women can have jobs.**

A. only 5.625%　　　B. less than 5.625%　　　C. only 5.25%　　　D. more than 5.625%
E. more than 5.625%

SET – 7

There are only four brands of entry level of Jeans A, B, C and D in a country. Details about their market share, unit selling price, and profitability (defined as the profit as a percentage of the revenue) for the year 2018 are given in the table below:

Brand	Market Share (%)	Unit selling price (in Rs.)	Profitability
A	30	8,000	20%
B	10	6,500	25%
C	25	5,000	30%
D	35	7,500	15%

In 2019, sales volume of entry level of Jeans grew up by 100% as that in 2018. C offered 20% discount on its selling price in 2019 which resulted in increase of 12% in market share. Each of the three rest brand lost 4% market share. However, the profitability of C came down to 70% of its value in 2018. The unit selling prices of the other three brands and their profitability values remained the same in 2019 as they were in 2018.

31. Find the difference between total profit of brand A in 2018 and total profit of brand C in 2019.

A. Rs. 12,360   B. Rs. 14,160   C. Rs. 14,820   D. Rs. 12,640   E. Rs. 11,200

32. What is the ratio of total profit of brand C in 2018 to total profit of brand B in 2019?

A. 28 : 15   B. 21 : 10   C. 25 : 13   D. 16 : 7   E. 34 : 11

33. What is the total profit of all four brands together is 2018?

A. Rs. 1,44,125   B. Rs. 1,42,125   C. Rs. 1,46,125   D. Rs. 1,41,125   E. Rs. 1,48,125

34. Total profit of brands A and B together in 2019 is what percent of total profit of brands C and D together in 2019?

A. 72.4%   B. 77.8%   C. 68.2%   D. 81.6%   E. 86.2%

35. Which of the following is correct?
I. Difference between profits of A and D in 2018 is Rs. 8625
II. Total profits of C in both years together is Rs. 99660
III. Profit of B increased by 20% in 2019 form 2018.

A. only II   B. Only I and II   C. All I, II and III   D. Only III   E. Only II and III
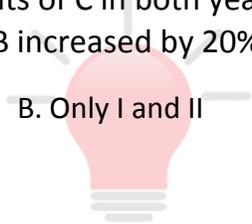
SET – 8

Directions : Study the following pie and line chart carefully and answer the questions given beside.

Four friends, Priyanka, Pinki, Rinki, and Munni start travelling for a certain distance from the same point and at the same time. The following stacked column chart gives the information about the percentage of the total distance travelled by them in five different modes of travelling namely On foot, Bicycle, Bike, Car and Rickshaw. Each one travels a different distance in the same time.
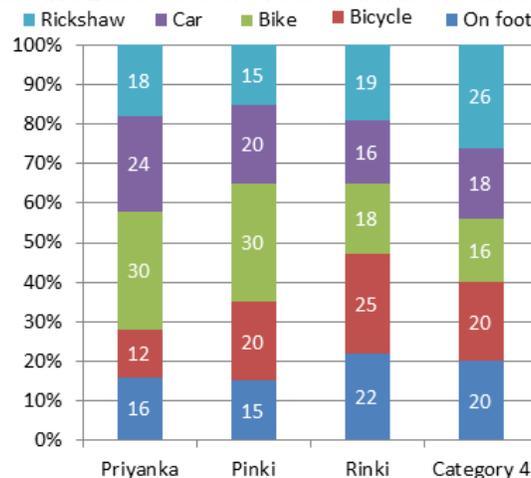
The following pie chart provides information about the distance (in km) travelled by each of them on foot as a percentage of the sum of the total distance travelled by them on foot.

Pie chart: Munni 25, Priyanka 20, Pinki 30, Rinki 25
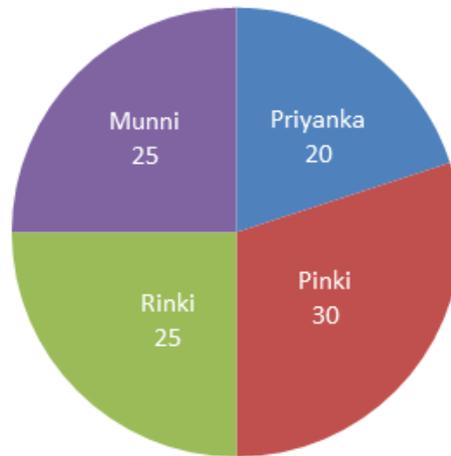
36. **For who among the following, the distance travelled by her was the least?**

A. Munni   B. Pinki   C. Priyanka   D. Rinki   E. Priyanka and Munni Both

37. **If the average speed of Priyanka is 45 km/hr and the distance travelled by her on foot is 36 km. Find the difference between the average speed of Priyanka and the average speed of Munni?**

A. 0 km/hr   B. 10 km/hr   C. 5 km/hr   D. 45 km/hr   E. 25 km/hr

38. **Suppose Pinki starts 1 hour later than all other three start their journey but Priyanka and Pinki complete their respective distance at the same time. The total distance travelled by all of them on foot is 250 km. Find the respective ratio of the average speed of Priyanka and Pinki in this case?**

A. 5 : 8   B. 5 : 6   C. 6 : 7   D. 6 : 5   E. Can't be determined

39. **If the total distance travelled by all of them on foot is 300 km. Find the sum of the total distance travelled by all of them by car and by rickshaw? (approx)**

A. 651 km   B. 541 km   C. 648 km   D. 698 km   E. Can't be determined

40. **Each of the two girls Rinki and Munni starts their journey at 10: 30 but Munni take 1-hour rest in the middle of the journey but each of them reaches their respective distance at 00:30. Find the ratio of the respective average speed of Rinki and Munni if the average of the total distance travelled by Priyanka and Pinki together on foot is 125 km.**

A. 10 : 11   B. 11 : 13   C. 14 : 11   D. 5 : 7   E. 11 : 10

SET – 9

Directions : Study the following pie and table chart carefully and answer the questions given beside.

A person travels daily for 8 hours for 5 days to cover a certain distance. The following pie chart shows the percentage of total distance travelled by him in 5 different modes on day1 (M1, M2, M3, M4, and M5) and the percentage of distance travelled by him with the same modes remained the same as each day of the journey.
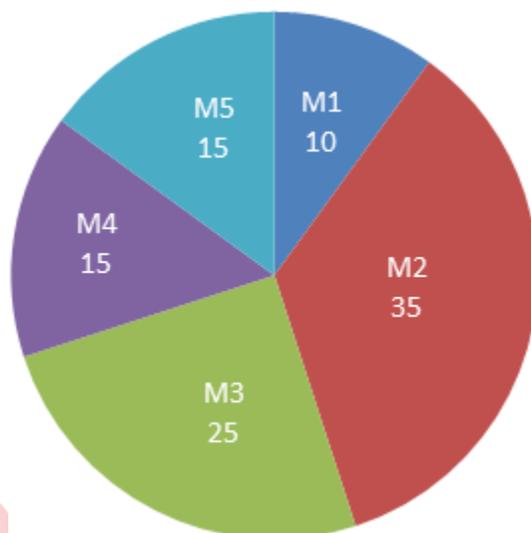
The table shows speed of M5 each day and the time it took to travel using M5 out of total travelling time that day.

Days	Speed of M5 (kmph)	Time taken by M5 each day as % of total travel time
1	40	6.25
2	60	12.5
3	68	3.125
4	72	8.33
5	120	16.67

41. **What is the sum of the total distance travelled by the person during the given five days?**

A. $1033\frac{1}{3}$ km

B. $2033\frac{2}{3}$ km

C. $2033\frac{1}{3}$ km

D. $1266\frac{1}{3}$ km

E. $1133\frac{3}{4}$ km

42. **What is difference between the total distance travelled by Mode 2 (M2) in the five days and the total distance travelled by Mode 3 (M3) in the five days?**

A. $203\frac{1}{3}$ km

B. $103\frac{1}{3}$ km

C. $203\frac{1}{3}$ km

D. $103\frac{2}{3}$ km

E. $610\frac{1}{3}$ km

43. The average speed of the person during the first two days is approximately what percent of the average speed of the person during the last three days?

A. 13.33%   B. 33.33%   C. 56.67%   D. 53.33%   E. 43.33%

44. Suppose, the person spends 25% of the total time on each day to travel by M1 then the average speed of M1 during the five days is approximately what percent less than the average speed of M5 during the five days?

A. 60%   B. 75%   C. 80%   D. 120%   E. 100%

45. What would have been the difference between the average speed of M3 during the five days and the average speed of M4 during the five days?

A. 42 kmph   B. $25\frac{1}{3}$ kmph   C. 30 kmph   D. 42 kmph   E. None of these

SET – 10

A new kind of rocket is produced by ISRO. It uses many small propellers to push the weight. A rocket can have many propellers and each propels the weight one by one. Means, one propeller pushes the rocket up for some time, and when it is run out of fuel, the next propeller starts, and so on.

In an experimental test, five similar rockets are tested. Each of them can have different number of propellers.

It is not necessary that all the propellers will be consumed while the test. Those which will not be consumed, are called unused, will be reused for a new rocket.

It might be possible that not all the propellers will work properly, such propellers are called defected. Some of the defected propellers can be improved to be used for new rocket.
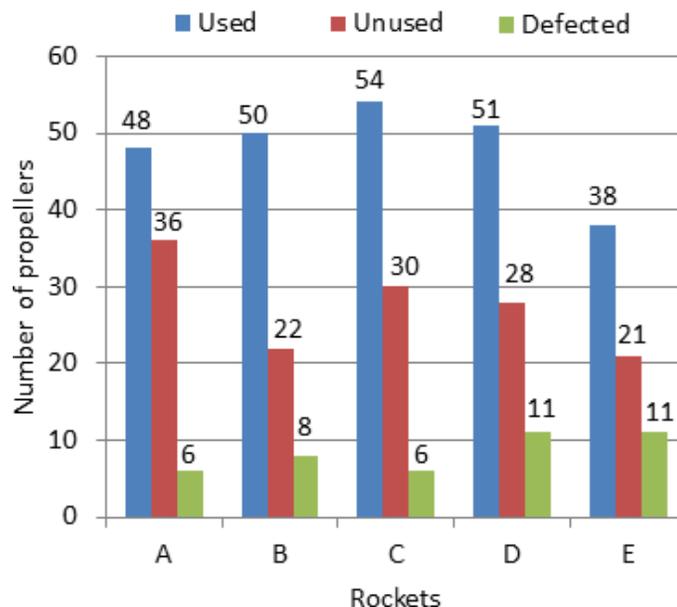
All propellers are identical, but the height they can push the weight of the rocket varies with the altitude above the earth surface.

Table gives information about the same.

Range of altitude above Earth Surface	Height pushed by one propeller
0 – 10 km	0.4 km
10 – 16 km	0.6 km
16 – 20 km	1 km
above 20 km	1.2 km

46. **Find the average number of propellers in the five rockets that were fittedin the rockets for the experimental test.**

A. 80   B. 84   C. 86   D. 88   E. 85

47. **If 66.66% of the defected propellers are improved to be used again, how many rockets can be made again if all the unused propellers are used along with improved propellers if each rocket is fitted with 55 propellers?**

A. 2   B. 3   C. 4   D. 5   E. Can't be determined

48. **Find the maximum height that a rocket will go among the five rockets.**

A. 20 km   B. 18 km   C. 32 km   D. 38 km   E. 44 km

49. **A propeller pushes a rocket for 0.006 minutes. Find the average speed of rocket E before it starts falling down towards the earth from the maximum height.**

A. 5000 kmph   B. 500 kmph   C. 4000 kmph   D. 10000 kmph   E. Can't be determined

50. **How many propellers are required to send a rocket to a height of 48,800 meters?**

A. 48   B. 52   C. 58   D. 63   E. Can't be determined

CORRECT ANSWERS:

1	B	11	B	21	B	31	B	41	C
2	C	12	A	22	A	32	C	42	A
3	C	13	B	23	B	33	D	43	D
4	D	14	C	24	D	34	B	44	B
5	B	15	D	25	C	35	C	45	E
6	A	16	D	26	D	36	D	46	B
7	D	17	C	27	B	37	A	47	B
8	D	18	A	28	A	38	E	48	D
9	D	19	B	29	B	39	A	49	A
10	B	20	A	30	B	40	A	50	D

Common Explanations: (Q. 1 to Q.5)

From the chart 2,
Let total time = 1080 m
Time A needs = 30 m
Time B needs = 15 m
Time C needs = 12 m
Time D needs = 60 m
Time E needs = 20 m
Time F needs = 12 m
We take LCM of all these = 60

Efficiency of A = $\dfrac{60}{30}$ = 2

Efficiency of B = $\dfrac{60}{15}$ = 4

Similarly, we find the efficiency of each.

The ratio of their efficiency,

A : B : C : D : E : F = 2 : 4 : 5 : 1 : 3 : 5 ------(i)

1.   From common explanation, we have

The efficiency of E = 3y

And the efficiency of A + B + C + D + F = 17y

Let the number of units of work be = 17 × 3y = 51y units

Time for A, B, C, D, F together = $\dfrac{51y}{17y}$ = 3 minutes

If E works for 3 minutes, unit of work he can finish = 3 × 3y = 9y

Percent of work = $\dfrac{9y}{51y}$ × 100 ≈ 17.6%

Stage-S forms 10% of the whole work, and he does only 17% (approx) which means he cannot finish any other stage in the given time.

Hence, option B is correct.
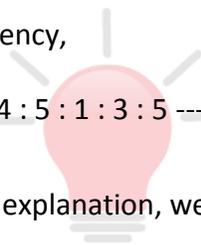
2. From expression common explanation, we have

The total efficiency when all the six persons work together = 2y + 4y + 5y + y + 3y + 5y = 20y

According to the question, when all six persons work together, they can complete the work in 90 minutes, therefore, let the total work = 90 × 20y units

In 48minutes, the total units of work done = 20y × 48 units

Remaining work = 20y × 42 units

Now, only B, D, and F work together to complete 20y × 42 units of work

The efficiency of B + D + F = 4y + y + 5y = 10y

The total number of minutes B + D + F will take to do the remaining work

$= \dfrac{20y \times 42}{10y} = 84$ minutes

Total time = 84 + 48 = 132 minutes

Hence, option C is correct.

3. From common explanation, we have

The efficiency of B = 4y

From the question, B alone can finish stage Q and R in 160 minutes, stage Q & R of the packing unit = 30% + 20% of the packing unit = 50% of the packing unit in 160 minutes.

Therefore, B alone can do the whole work in 320 minutes
Therefore, let the total work = 4y × 320 units
Stage Q = 30% of 4y × 320 = 384y
Efficiency of D and E = y + 3y = 4y

Total number of days taken by D and E to finish 384y units of work $= \dfrac{384y}{4y} =$ 96 minutes

Stage R = 20% of 4y × 320 = 256y
The efficiency of A + B + C + F = 2y + 4y + 5y + 5y = 16y

The total number of days taken by A + B + C + F to do 256y units of work $= \dfrac{256y}{16y} =$ 16 minutes

Total = 96 minutes + 16 minutes = 112 minutes

Hence, option C is correct.

4.   From common explanation, we have

In the first 18 minutes, the total units of work done by A + B + C + D + E + F = (2y + 4y + 5y + y + 3y + 5y) × 18 = 20y × 18 units

In the next 16 minutes the total units of work done by B + C + D + E + F = (4y + 5y + y + 3y + 5y) × 16 = 18y × 16 units

Again, in the next 12 minutes the total units of work done by C + D + E + F = (5y + y + 3y + 5y) × 12 = 14y × 12 units

Again, in the next 10 minutes the total units of work done by D + E + F = (y + 3y + 5y) × 10 = 9y × 10 units

Now onwards, only E and F work till the last, therefore, the total units of work done by E + F in the next (120 – 56) = 64 minutes

Number of units of work = (3y + 5y) × 64 = 8y × 64
Total units of work = 360y + 288y + 148y + 90y + 512y = 1398y units
The efficiency of C = 5y

Therefore, the total time taken by C alone to do 1398y units of work $= \dfrac{1398y}{5y} = 279.6$ minutes

Hence, option D is correct.
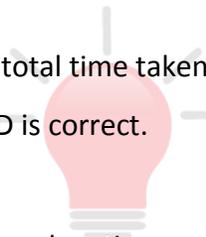
5.   From common explanation, we have

P parts of the whole work = 25% of the whole work they all together can complete in 125 minutes therefore 100% of the whole work = the whole work they can complete in 125 × 4 = 500 minutes

The total units of work = (2y + 4y + 5y + y + 3y + 5y) × 500 = 20y × 500 units

The number of minutes taken by A + B + C together to do 20y × 500 units of work
$= \dfrac{20y \times 500}{11y} = \dfrac{10000}{11}$ minutes

The number of minutes taken by D + E + F together to do 20y × 500units of work
$= 20y \times \dfrac{500}{9} y = \dfrac{10000}{9}$ minutes

The reqd. difference $= \dfrac{10000}{9} - \dfrac{10000}{11} = 202$ minutes (approx)

Hence, option B is correct.

Common Explanation: (Q. 6 to Q.10)

Sale in January (2016) = 160% of 420 = 672
Sale in February (2016) = 75% of 384 = 288
Sale in March (2015) = 79.2% of 500 = 396
Sale in Q1 of 2015 = 420 + 384 + 396 = 1200
Sale in Q1 of 2016 = 672 + 288 + 500 = 1460

Sale in April (2016) = $\dfrac{480}{6} \times 7$ = 560

Sale in June (2016) = 2072 – (560 + 912) = 600
Sale in Q2 of 2015 = 2072 – 312 = 1760
Sale in Q3 of 2015 = 752 + 802 + 714 = 2268
Sale in September (2016) = 120% of 750 = 900
Sale in Q3 of 2016 = 650 + 750 + 900 = 2300
Sale in November (2016) and December (2016) = 1725 – 765 = 960
Let, Sale in December (2016) be x
Sale in November (2016) = 2x – 60
So, x + 2x – 60 = 960
3x = 1020
x = 340
Sale in December (2016) = 340
Sale in November (2016) = 620
Sale in October (2015) = 2835 – (900 + 1100) = 835

	2015		2016	
January	420		672	
February	384	Q1, 1200	288	Q1, 1460
March	396		500	
April	480		560	
May	800	Q2, 1760	912	Q2, 2072
June	480		600	
July	752		650	
August	802	Q3, 2268	750	Q3, 2300
September	714		900	
October	835		765	
November	900	Q4, 2835	620	Q4, 1725
December	1100		340	
Total	8063		7557	

6. From common explanation, we have

From Q1 to Q2, percentage = $\dfrac{1760 - 1200}{1200} \times 100 = 46.67\%$

From Q2 to Q3, percentage = $\dfrac{2268 - 1760}{1760} \times 100 = 28.86\%$

From Q3 to Q4, percentage = $\dfrac{2835 - 2268}{2268} \times 100 = 25\%$

Hence, option A is correct.

7. From common explanation, we have

Total = 1460 + 2072 + 2300 + 1725 = 7557

Hence, option D is correct.

8. From common explanation, we have

December is correct answer.

Hence, option D is correct.

9. From common explanation, we have

For Q1:
Percentage = $\dfrac{1460 - 1200}{1200} = 21.67\%$

For Q2:
Percentage = $\dfrac{2072 - 1760}{1760} = 17.7\%$

For Q3:
Percentage = $\dfrac{2300 - 2268}{2268} \times 100 = 1.4\%$

For Q4:
Percentage = $\dfrac{2835 - 1725}{2835} \times 100 = 39.15\%$

Hence, option D is correct.

10. From common explanation, we have

February is correct answer.

Hence, option B is correct.

Common Explanations : (Q. 11 to Q.15)

Total blue wallet sold by all four = 2705 – (700 + 585 + 660) = 760

Blue wallet sold by B = 760 – (140 + 330 + 70) = 220

Total wallet sold by B = 225 + 165 + 220 + 45 = 655

Total wallet sold by D = 2705 – (590 + 655 + 850) = 610

Black wallet sold by D = 610 – (195 + 70 + 170) = 175

Black wallet sold by C = 700 – (120 + 225 + 175) = 180

White wallet sold by C = 850 – (180 + 80 + 330) = 260

White wallet sold by A = 660 – (170 + 260 + 45) = 185

Red wallet sold by A = 590 – (120 + 140 + 185) = 145

11. Following the common explanation, we get

The amount generated by shopkeeper A after selling the wallets = 120 × 80 + 145 × 60 + 140 × 50 + 185 × 40 = Rs. 32700

Hence, option B is correct.

12. Following the common explanation, we get

Wallet sold by D = 2705 – (590 + 655 + 850) = 610

Hence, option A is correct.

13. Following the common explanation, we get

Required ratio = 185 : 80 = 37 : 16

Hence, option B is correct.

14. Following the common explanation, we get

Total wallet sold at discount by C = 20% of 180 + 30% of 80 + 10% of 330 + 15% of 260 = 36 + 24 + 33 + 39 = 132

Hence, option C is correct.

15. Following the common explanation, we get

Red wallet sold by A is 145 is correct.

Hence, option D is correct.

Common Explanations : (Q. 16 to Q.20)

We calculate all the distance they ran on a particular day according to given plan.

For the rest we will calculate from

Distance = the number of trips x length of the track on which the particular person ran.

For example, Ram on Tuesday ran in park S-3 and made 4 trips. Length of S-3 is 500 meters so,

Distance = 4 × 500 = 2000meters.

Similarly, other values can be calculated easily. Here the table gives all those values:

All distance in meters –

	Monday	Tuesday	Thursday	Friday
Ram	1500	2000	2000	1000
Arun	1500	2400	1800	2500
Tahir	1500	2000	3500	2400
Karan	1200	1800	3000	1200

16. From the common explanation, we have

We verify each option one by one as follows.

In option D, Ram run in S-4. It has a length of 250 meters. Number of trips he makes = 6, so the distance he covers is = 6 × 250 = 1500 meters. Time he took 10min,

so his speed is $\dfrac{1500}{10}$ = 150 m/min

Similarly, for Arun run in S-3. It has a length of 500 meters. Number of trips he makes = 3, so the distance he covers is = 3 × 500 = 1500 meters. Time he took 10min,

so his speed is $\dfrac{1500}{10}$ = 150 m/min

Similarly, for Tahir run in S-2. It has a length of 300 meters. Number of trips he makes = 5, so the distance he covers is = 5 × 300 = 1500 meters. Time he took 10min,

so his speed is $\dfrac{1500}{10}$ = 150 m/min

Karan run in S-5. It has a length of 600 meters. Number of trips he makes = 2, so the distance he covers is = 2 × 600 = 1200 meters. Time he took 8min,

so his speed is $\dfrac{1500}{8}$ = 150 m/min

In the same way when we calculate for other option we see they don't give same speed for all the persons.

Therefore, right combination is

Ram – S-4, Arun– S-3, Tahir– S-2, and Karan– S-5

Hence, option D is correct.

17. From the common explanation, we have

Consider Monday, the distance in this game they will run is sum of all the individual distances they ran. So we have from common explanation:

On Monday, distance = 1500 + 1500 +1500 + 1200 = 5700 meter

from table-2, Total time = 10 + 10 + 10 + 8 = 38 min

common speed = $\dfrac{\text{the total distance all the four persons ran}}{\text{total time to finish this game}}$

$= \dfrac{5700}{38} = 150$

For Tuesday, distance = 2000 + 2400 + 2000 + 1800 = 8200 meter

from table-2, total time = 12 + 18 + 15 + 12 = 57 min

common speed = $\dfrac{8200}{57} = 143.8$ meter/min

For Thursday, distance = 2000 + 1800 + 3500 + 3000 = 10300 meter

from table-2, total time = 16 + 15 + 21 + 20 = 72 min

common speed = $\dfrac{10300}{72} = 143.1$ meter/min

For Friday, distance = 1000 + 2500 + 2400 + 1200 = 7100 meter

from table-2, total time = 10 + 20 + 16 + 12 = 58 min

common speed = $\dfrac{7100}{58} = 122.4$ meter/min

It can easily be seen that common speed is least in Friday.

Hence, option C is correct.

18. From common explanation, we see distance Ram and Tahir ran on tuesday is same 2000 meter for both. The time they took to cover this distance we see from table-2, Ram took 12 min while Tahir took 15 min.

Thus speeds of Ram and Tahir on tuesday is 2000/12 meter/min and 2000/15 meter/min respectively.

They run for 5 minutes new track on sunday, so the distance they cover in this time would be

$$\text{Ram} = \frac{5 \times 2000}{12} \text{ meter} = \frac{5000}{6} \text{ meter}$$

$$\text{Tahir} = \frac{5 \times 2000}{15} \text{ meter} = \frac{2000}{3} \text{ meter}$$

Similarly, for Arun and Karan, we have distance covered on thursday is 1800 meter and 3000 meter respectively. The time taken for this we see from table-2.

Distance cover on new track in 5 minutes for both of them on sunday would be

$$\text{Arun} = \frac{5 \times 1800}{15} = 600 \text{ meter}$$

$$\text{Karan} = \frac{5 \times 3000}{20} = 750 \text{ meter}$$

For Ram, the distance between where he stopped and the finish line would be

$$= 1000 - \frac{5000}{6} = \frac{1000}{6}$$

Similarly, for Tahir $= 1000 - \frac{2000}{3} = \frac{1000}{3}$

for Arun = 1000 − 600 = 400

for Karan = 1000 − 750 = 250

Sum of all these measurements

$$= \frac{1000}{6} + \frac{1000}{3} + 400 + 250 = 1150$$

$$\text{Average} = \frac{1150}{4} = 287.5 \text{ meter}$$

Hence, option A is correct.

19. From the common explanation, we have

Ram on Tuesday was in S-3, so Karan on Wednesday goes to S-3, while Karan on Tuesday was in S-2 so Ram on Wednesday goes to S-2. Similarly, Tahir and Arun on Wednesday goes to S-5 and S-1 respectively.

Other things like time and number of trips for Wednesday is same as Tuesday. So we write all the information as follows –

	Tuesday	Wednesday	Length	Trips	Time	Speed
Ram	S-3	S-2	300m	4	12 min	300 × 4/12 = 100m/min
Karan	S-2	S-3	500m	6	12 min	500 × 6/12 = 250m/min
Tahir	S-1	S-5	600m	5	15 min	600 × 5/15 = 200m/min
Arun	S-5	S-1	400m	4	18 min	400 × 4/18 = 88.8m/min

Order of name by speed,
Karan > Tahir > Ram > Arun

Hence, option B is correct.

20. From the common explanation, we have

Karan on Tuesday make 6 trip in 12 minutes in S-2 park which has a length of 300 meters.

So Ram's brother will also go in same park. Karan make 6 = 2 + 2 + 2 trips, so Ram's brother make one more for each 2 of Karan. Thus Ram's brother will make 3 + 3 + 3 = 9 trips.

Total distance he ran in S-2 = 300 × 9 meter

Time he took = 12min

Ram on Thursday in S-4 park in 16 minutes makes 8 trips = 2 + 2 + 2 + 2, his brother will make 3 + 3 + 3 + 3 = 12 trips.

Total distance he ran in S-4 = 250 × 12 meter

Tahir on Friday in S-5 park in 16 minutes makes 4 trips = 2 + 2, his brother will make 3 + 3 = 6 trips.

Total distance he ran in S-5 = 600 × 6 meter
Total distance his brother ran = 300 × 9 + 250 × 12 + 600 × 6 = 9300 meter
Total time he took = 12 + 16 + 16 = 44 minutes
average speed = $\dfrac{9300}{44}$ = 211.4 m/min

Hence, option A is correct.

Common Explanations :(Q. 21 to Q. 25)

Sample taken from district A = 160 × 100 = 16000

Sample taken from district B = 200 × 100 = 20000

Sample taken from district C = 240 × 100 = 24000

Total samples = 16000 + 20000 + 24000 = 60000

Total samples of category 20 = 20% of 60000 = 12000

Total samples of category 20-40 = 50% of 60000 = 30000

Total samples of category 40 = 30% of 60000 = 18000

Districts	Category 20			Category 20-40			Category 40			Grand Total
	GH	PH	Total	GH	PH	Total	GH	PH	Total	
A	2840			4200			3650			16000
B	2450			6600			1800			20000
C	800			4800			4250			24000
Total	6090		12000	15600		30000	9700		18000	

From condition (1),
In C, total samples of category 20 = 17.5% of 24000 = 4200

Samples tested in PH for category 20 from C = 4200 − 800 = 3400

Rest samples from C which were tested in PH = 24000 − 4200 − 4800 − 4250 = 10750

Samples tested in PH for category 20-40 from C = Samples tested in PH for category 40 from C

$= \dfrac{10750}{2} = 5375$

From condition (2),
Since, from A, for the category 40, number of samples tested in GH was 82.5% more than number of samples tested in PH.

Let samples tested for the category 40 from A in PH = x

Samples tested for the category 40 from A in GH = 182.5% of x = 1.825x

So, 1.825x = 3650
x = 2000

Samples tested for the category 40 from A in PH = 2000

Total samples tested for the category 40 from A = 3650 + 2000 = 5650

From condition (3),
Number of samples tested for category 20 from A and number of samples tested for category 20 from B together = 12000 − 4200 = 7800

Samples tested for category 20 from A = $\dfrac{7800}{39} \times 19 = 3800$

Samples tested for category 20 from B = $\dfrac{7800}{39} \times 20 = 4000$

Samples tested in PH for category 20 from A = 3800 − 2840 = 960

Samples tested in PH for category 20 from B = 4000 − 2450 = 1550

After using all three conditions, table will be

Districts	Category 20			Category 20-40			Category 40			Grand Total
	GH	PH	Total	GH	PH	Total	GH	PH	Total	
A	2840	960	3800	4200			3650	2000	5650	16000
B	2450	1550	4000	6600			1800			20000
C	800	3400	4200	4800	5375	10175	4250	5375	9625	24000
Total	6090	5910	12000	19600		30000	9700		18000	

Total samples tested for category 40 from B = 18000 − 5650 − 9625 = 2725
Samples tested for category 40 in PH from B = 2725 − 1800 = 925
Total samples tested for category 20-40 from A = 16000 − 3800 − 5650 = 6550
Samples tested for category 20-40 in PH from A = 6550 − 4200 = 2350
Total samples tested for category 20-40 from B = 20000 − 4000 − 2725 = 13275

Samples tested for category 20-40 in PH from B = 13275 − 6600 = 6675

Final table :

Districts	Category 20			Category 20-40			Category 40			Grand Total
	GH	PH	Total	GH	PH	Total	GH	PH	Total	
A	2840	960	3800	4200	2350	6550	3650	2000	5650	16000
B	2450	1550	4000	6600	6675	13275	1800	925	2725	20000
C	800	3400	4200	4800	5375	10175	4250	5375	9625	24000
Total	6090	5910	12000	15600	14400	30000	9700	8300	18000	

21. From common explanation, we have

Difference = 6675 – 2350 = 4325

Hence, option B is correct.

22. From common explanation, we have

Samples found negative for category 40 in PH from B = 20% of 925 = 185

Hence, option A is correct.

23. From common explanation, we have

Ratio = 4000 : 5650 = 80 : 113

Hence, option B is correct.

24. From common explanation, we have

Number of samples of males tested for category 20-40 from C = 10175 – 5175 = 5000

$Percent = \dfrac{5000}{2000} \times 100 = 250\%$

Hence, option D is correct.

25. From common explanation, we have

Number of samples tested in GH = 6090 + 15600 + 9700 = 31390

Number of samples tested in PH = 60000 – 31390 = 28610

Hence, option C is correct.

26. Let there be 1000y adult literate females, then

$0.75 \times 0.8 \times 0.75 \times 1000y = 1008$

$y = 2.24$

So, adult literate female = 2240

Now, total adult literate = $\dfrac{8 + 7}{7} \times 2240 = 4800$

We have,

50% of Total adult (literate + illiterate) = 4800

So, Total adult (literate + illiterate) = 4800 × 2 = 9600

Then we have,

64% of Total population = number of adults (literate + illiterate) = 9600

Total Population = $\dfrac{100}{64} \times 9600 = 24000$

Hence, option D is correct.
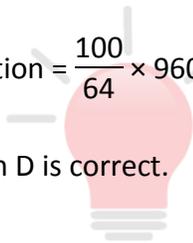
27.

Number of literate adults = $\dfrac{5}{2} \times 15840 = 39600$

Number of adults (literate + illiterate) = $\dfrac{100}{40} \times 39600$

Total population = $\dfrac{100}{60} \times \left(\dfrac{100}{40} \times 39600 \right) = 165000$

Average population of villages = $\dfrac{165000}{110} = 1500$

Hence, option B is correct.

28. Here we have to take the least possible population of category B and the highest possible population of category E villages.

In 2016, least possible population of category B villages = 127 × 200

Highest possible population of category E villages = 80 × 5000

The percentage = $\dfrac{127 \times 200}{80 \times 5000} \times 100 = 6.35\%$

Hence, option A is correct.

29. To find the least possible population of D in 2006, we must start with least possible population of D category villages in 2016.

So,

Total Population of D type villages in 2016 = 1001 × 129

Since, it is less than what the population was in 2006, the population in 2006 must be in the form = 1001 × 129 + y, where y = 1, 2, 3, and so on.

But we have to tell the minimum possible population, we must choose y = 1.

So, total population in 2006 = 1001 × 129 + 1 = 129130

Average population = $\dfrac{129130}{110}$ = 1173.9 = 1174 (approx)

Hence, option B is correct.

30. Let the population of any village of category A be 800y, then

Number of adults (lit. + ill.) = 60% of 800y = 480y

Number of literate adults = 60% of 480y = 288y

Number of literate females = $\dfrac{3}{8} \times 288y = 108y$ -------(i)

Now, according to the condition, we have

$800y < 200 \rightarrow y < \dfrac{1}{4}$

Therefore, we have from (i),

Number of literate females = 108y < 27 (max)

To find the maximum number of employed women, it is possible that all are employed, so

Percentage = $\dfrac{\text{number of employed females}}{\text{all adults}} \times 100$

$= \dfrac{27y}{480y} \times 100 = 5.625\%$

So, less than 5.625% literate women among all the adults are employed.

Hence, option B is correct.

Common Explanations :(Q. 31 to Q. 35)

Let, total sales of all brands in 2018 be 100.

So, total sales of all brands in 2019 = 200% of 100 = 200

For brand A in 2018:

Profit = 30 × 8000 × 20% = Rs. 48,000

For brand A in 2019:

Total sales = 26% of 200 = 52 units

Profit = 52 × 8000 × 20% = Rs. 83,200

Accordingly, we can fill the following table:

Brand	2018				2019			
	Sales	Unit selling price (in Rs.)	Profitability (in Rs.)	Profit (in Rs.)	Sales	Unit selling price (in Rs.)	Profitability (in Rs.)	Profit (in Rs.)
A	30	8,000	20%	48,000	52	8,000	20%	83,200
B	10	6,500	25%	16,250	12	6,500	25%	19,500
C	25	5,000	30%	37,500	74	4,000	21%	62,160
D	35	7,500	15%	39,375	62	7,500	15%	69,750
Total	100				200			

31. From the common explanation, we have

Difference = 62160 – 48000 = Rs. 14,160

Hence, option B is correct.

32. From common explanation, we have

Ratio = 37500 : 19500 = 25 : 13

Hence, option C is correct.

Join us

33. From common explanation, we have

Total profit = 48000 + 16250 + 37500 + 39375 = Rs. 1,41,125

Hence, option D is correct.

34. From common explanation, we have

Total profit of brands A and B together in 2019 = 83200 + 19500 = 1,02,700
Total profit of brands C and D together in 2019 = 62160 + 69750 = 1,31,910

Percentage = $\dfrac{102700}{131910} \times 100 = 77.8\%$

Hence, option B is correct.

35. From common explanation, we have

I. Difference between profits of A and D in 2018 is Rs. 8625
Difference = 48000 − 39375 = Rs. 8625

II. Total profit of C in both years together is Rs. Rs. 99660
Total profit = 37500 + 62160 = Rs. 99660

III. Profit of B increased by 20% in 2019 form 2018.
Percentage increase = $\dfrac{19500 - 16250}{16250} \times 100 = 20\%$

Hence, option C is correct.

36. Let the total distance travelled by them on foot = 100y km

The total distance travelled by Priyanka on foot = 20% of 100y
Now, she travelled 16% distance on foot of what she travelled, so
20% of 100y = 16% of total distance she travelled
The total distance she (Priyanka) travelled = $\dfrac{20y}{0.16}$ = 125y km

Similarly, the total distance travelled by Pinki = 200y km
The total distance Rinki travelled = 114y km
The total distance Munni travelled = 125y km
So, Rinki travelled the longest distance.
Hence, option D is correct.

37. The distance travelled by Priyanka on foot = 16% of the total distance = 36 km
The total distance travelled by Priyanka = 225 km
Average speed = 45 km/hr,

Time she took = $\dfrac{225}{45}$ = 5 hours ---------(i)

From the pie chart, 36 km = 20% of the total distance travelled by all of them together on foot.
The total distance travelled by Munni on foot = 25% of the total distance travelled by all of them on foot
Since, 20% = 36 km therefore,

25% = $\dfrac{36 \times 25}{20}$ = 45 km

From the stacked chart, 45 km = 20% of the total distance travelled by Munni

The total distance travelled by Munni
$\dfrac{45 \times 100}{20}$ = 225 km

In the question, it is given that each of them takes equal time, so from the equation (i) even Munni will take 5 hours.

Average speed of Munni = $\dfrac{225 \text{ km}}{5 \text{ h}}$ = 45 kmph

Difference = 45 kmph – 45 kmph = 0 km/hr
Hence, option A is correct.

38. Let the time taken by Pinki = T hours
Then according to the question, the time taken by Priyanka = T + 1 hours
Now, For Priyanka
20% of the total distance travelled by all of them on foot = 16% of the total distance travelled by Priyanka
20% of 250 = 16% of the total distance travelled by Priyanka
By solving, the total distance travelled by Priyanka = 312.5 km

Average speed of Priyanka = $\dfrac{312.5}{T + 1}$ kmph ------(i)

Similarly for Pinki,
30% of the total distance travelled by all of them on foot = 15% of the total distance travelled by Pinki
30% of 250 = 15% of the total distance travelled by Pinki By solving, the total distance travelled by Pinki = 500 km
Average speed = 500 km/T ------(ii)
We cannot find any ratio from the two results (i) and (ii).
Hence, option E is correct.

39. The total distance travelled by all of them on foot is 300 km.

For Priyanka,

The total distance travelled by Priyanka on foot = 20% of the total distance travelled by all of them on foot = 20% of 300 = 60 km

16% of the total distance travelled by Priyanka = 60 km

The total distance travelled by Priyanka by car and by rickshaw = (18 + 24)% of the total distance 16% = 60 so the value of 42%

$\dfrac{60 \times 42}{16}$ = 157.5 km

Similarly, For Pinki,

30% of 300 = 15% of the total distance travelled by her

15% = 90

So, (20 + 15)% = 35%

$\dfrac{90 \times 35}{15}$ = 210 km

Similarly, for Rinki = 119.32 km

For Munni = 165 km

Sum = 651.82 km

Hence, option A is correct.

40. The sum of the total distance travelled by Priyanka and Pinki together on foot is 125 × 2 = 250 km

From the pie chart, the sum of the total distance travelled by Priyanka and Pinki together on foot = (20 + 30) % of the total distance travelled by all of them on foot

50% of the total distance travelled by all of them on foot = 250 km

The total distance travelled by all of them on foot = $\dfrac{250 \times 100}{50}$ = 500 km

The total distance travelled by Rinki on foot = 25% of 500 = 125 km = 22% of the total distance travelled by her 22% of the total distance = 125 km

Total distance Rinki travelled = $\dfrac{125 \times 100}{22}$

Total time taken by her = 14 hrs

Speed = $\dfrac{(125 \times 100)}{(14 \times 22)}$ kmph

The total distance travelled by Munni on foot = 25% of 500 = 125 km = 20% of the total distance travelled by her 20% of the total distance = 125 km

Total distance = $\dfrac{125 \times 100}{20}$ km

Total time taken by Munni = 14 hour

Speed = $\dfrac{125 \times 100}{14 \times 20}$ kmph

Ratio = $\dfrac{125 \times 100}{14 \times 22} : \dfrac{125 \times 100}{14 \times 22}$ = 10 : 11

Hence, option A is correct.

Common Explanations :(Q. 41 to Q. 45)

Days	Time taken by M5 each day as % of total travel time	8 hour travelling each day
1	6.25	6.25% of 8 = 30 min
2	12.5	1 hour
3	3.125	15 min
4	8.33	40 min
5	16.67	1 h 20 min

Let from day 1 to day 5 he travels A, B, C, D, and E km respectively,

From the table given in the question and above,

Distance = speed × time = $40 \times \dfrac{1}{2}$ = 20 km

From pie chart, for M5, this is 15% of total distance, so

Total distance, A = $\dfrac{100 \times 20}{15}$ km

Similarly, we calculate for each day

B = $\dfrac{100 \times 60}{15}$ km

C = $\dfrac{100 \times 17}{15}$ km

D = $\dfrac{100 \times 48}{15}$ km

E = $\dfrac{100 \times 160}{15}$ km

41. From common explanation we have

Total distance = A + B + C + D + E = $\dfrac{30500}{15}$ = $2033\dfrac{1}{3}$ km

Hence, option C is correct.
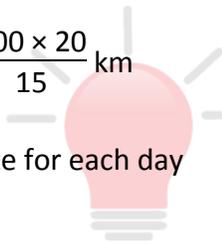
42. From common explanation, we have

Distance travelled by M3 in five days

25% of A + 25% of B + 25% of C + 25% of D + 25% of E

25% of (A + B + C + D + E)= 25% of $2033\frac{1}{3}$ km

Similarly, distance travelled by M2 in five days

= 35% of $2033\frac{1}{3}$ km

Difference = 10% of $2033\frac{1}{3}$ km

= $\frac{610}{3}$ km = $203\frac{1}{3}$ km

Hence, option A is correct.

43. Total distance in first two days from common explanation

= A + B = $\frac{1600}{3}$ km

Total time = 2 × 8 = 16 hours

Average speed = $\frac{(1600/3)}{16} = \frac{100}{3}$ kmph

Similarly, average speed for last three days = $\frac{125}{2}$ kmph

Percentage = $\frac{(100/3)}{(125/2)} \times 100 = 53.33\%$

Hence, option D is correct.

44. From common explanation, we have

Total time to travel by M1 in five days = 25% of (5 × 8) = 10 hours

Total distance travelled by M1 in five days = 10% of (A + B + C + D + E)

= 10% of $2033\dfrac{1}{3}$ = $\dfrac{610}{3}$ km

Average speed of M1 during the five days

= $\dfrac{(610/3)}{10}$ = $\dfrac{61}{3}$ kmph

Now, distance travelled using M5 in five days = 15% of of (A + B + C + D + E)

= 15% of $2033\dfrac{1}{3}$ = 305 km

Time of M5 (from table in common explanation)

= $\dfrac{1}{2}$ hr + 1 hr + $\dfrac{1}{4}$ hr + $\dfrac{2}{3}$ hr + $\dfrac{4}{3}$ hr = $\dfrac{15}{4}$ hr

Average speed = $\dfrac{305}{15/4}$ = $\dfrac{244}{3}$ kmph

Percentage difference = $\dfrac{(244/3 - 61/3)}{244/3}$ × 100 = 75%

Hence, option B is correct.

45. From common explanation, we have

Since we could not find the time spend by the person to travel by mode3 or mode 4 therefore, it is not possible to get the answer.

Hence, option E is correct.

Common Explanations :(Q. 46 to Q. 50)

Each rocket has 3 kind of propellers = used + unused+ defected

We add the value for the three columns for each rocket to get the number of propellers used in each rocket.

Rockets	Used	Defected	Unused	Total
A	48	6	36	90
B	50	8	22	80
C	54	6	30	90
D	51	11	28	90
E	38	11	21	70
Total	241	42	137	420

46. From common explanation, we have

Average = $\dfrac{420}{5}$ = 84

Hence, option B is correct.

47. From common explanation, we have
Improved propellers = 66.66% of 42 = 28
Total reusable propellers = unused + improved = 137 + 28 = 165

Number of rockets = $\dfrac{165}{55}$ = 3

Hence, option B is correct.

48. From common explanation, we have
It is obvious that the rocket which has maximum number of 'used' rocket will go maximum height.
Rocket C is that rocket.
Now, to find the height, we use the information given in the table in question.

For 0-10 km range, number of propellers required = $\dfrac{10 \text{ km}}{0.4 \text{ km}}$ = 25

For 10-16 km range, number of propellers required = $\dfrac{6 \text{ km}}{0.6 \text{ km}}$ = 10

For 16-20 km range, number of propellers required = $\dfrac{4 \text{ km}}{1 \text{ km}}$ = 4

Till now, we have 39 used propellers to reach height of 20 km, for above this, we have 54 – 39 = 15 propellers.
Each of these 15 will go 1.2 km, so max height = 20 + 15 × 1.2 = 38 km
Hence, option D is correct.

49. From common explanation, we have

First we find out how high the rocket E can go. So,

For 0-10 km range, number of propellers required = $\dfrac{10 \text{ km}}{0.4 \text{ km}}$ = 25

For 10-16 km range, number of propellers required = $\dfrac{6 \text{ km}}{0.6 \text{ km}}$ = 10

From now, rocket E has only 3 propellers, so maximum height it can go = 10 + 6 + 3 = 19 km

Total time = 0.006 minutes × 38 = $\dfrac{38 \times 0.006}{60}$ hours = 0.0038 hours

Average speed = $\dfrac{19 \text{ km}}{0.0038 \text{ hours}}$ = 5000 kmph

Hence, option A Is correct.

50. From common explanation, we have

For 0-10 km range, number of propellers required = $\dfrac{10 \text{ km}}{0.4 \text{ km}}$ = 25

For 10-16 km range, number of propellers required = $\dfrac{6 \text{ km}}{0.6 \text{ km}}$ = 10

For 16-20 km range, number of propellers required = $\dfrac{4 \text{ km}}{1 \text{ km}}$ = 4

Till now, we have send the rocket to a height of 20 km.

We need to go 48.8 km – 20 km = 28.8 km more, so

Number of propellers = $\dfrac{28.8 \text{ km}}{1.2}$ = 24

Total number of propellers = 25 + 10 + 4 + 24 = 63

Hence, option D is correct.