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The Question Bank

Data Interpretation Questions for Insurance and Bank Clerk Mains Exams

Directions: Study the given sets information carefully and answer the following questions beside.

SET 1

There are five Taps of different capacities - T1, T2, T3, T4 and T5.

T1: It takes 10 minutes to fill the 20% of the tank.

T2: It takes 15 minutes to fill the 10% of the tank.

T3: It takes 45 minutes to fill the 15% of the tank.

T4: It takes 30 minutes to fill the 30% of the tank.

T5: It takes 35 minutes to fill the 25% of the tank.

1. A tank has 3 taps. T1 and T2 to fill the tank and third Tap to make it empty. The 3rd tap is takes 60 minutes to empty 75% of the tank. All the 3 taps are opened in the beginning. After 14 minutes, 3rd tap is closed. In how much time, will the rest of the tank be full?

A. 30.0625 minutes B. 15.125 minutes C. 45.0312 minutes

D. 60 minutes E. None of these

2. Taps T3 and T4 are filling the tank while a 3rd tap can empty the full tank in 50 minutes. T3 and T4 are kept open for 10 minutes in the beginning and then 3rd tap is also opened. In how much time will the tank be emptied?

A. 28 minutes B. 25 minutes C. 21 minutes

D. 20 minutes E. 16 minutes

3. Taps T1 and T5 are used to fill the tank. There is a 3rd tap in the bottom of tank to empty it. If all the three taps are simultaneously opened, then the tank is full in 50 minutes. In how much time, the 3rd Tap alone can empty the tank?

A. 130 minutes B. 120 minutes C. 140 minutes

D. 60 minutes E. None of these

4. Two taps T3 and T4 can fill a tank and a waste tap can empty in 150 minutes. All the 3 taps working together can fill the tank in 150 minutes. The capacity of the tank is:

A. 180 units B. 300 units C. 250 units

D. 340 units E. None of these

5. A large tanker can be filled by two taps T2 and T3. How many minutes will it take to fill the tanker from empty state if T2 is used for half the time and T3 and T2 fill it together for the other half?

A. 60 minutes B. 45 minutes C. 30 minutes

D. 15 minutes E. None of these

SET 2

In table shows schedule of trains Howrah Delhi Kalka Mail and number of passengers boarding at each station.

Station	Arrival time	Departure time	Distance from origin (in km)	Halt Time (in minutes)	Number of Passengers boarding at each station
Howrah jn	Starting	7:30 pm	--	--	500
Asansol jn	10:25 pm	10:30 pm	195	5 min	220
Gaya jn	2:50 am	3:00 am	454	10 min	80
Mughal Sarai jn	6:25 am	6:40 am	752	15 min	330
Allahabad jn	9:20 am	9:30 am	1020	10 min	160
Delhi	11:50 am	Terminates	1208	--	--

6. If the average speed of Howrah Kalka Mail increases by 20% then when will it reach to Delhi?

A. 9:07 am B. 9:10 am C. 9:20 am

D. 9:30 am E. 9:02 am

7. If out of 500 passengers who boarded the Howrah Delhi Kalka Mail from Howrah, 230 passengers got down at Asansol jn. Then find the ratio between the number of passengers who travelled between Asansol jn to Gaya jn and the

number of passengers who boarded the Howrah Delhi Kalka Mail from Mughal Sarai jn.

A. 32 / 16 B. 16 / 23 C. 33 / 49

D. 49 / 33 E. None of these

8. How much time does the train Howrah Delhi Kalka Mail takes to reach Delhi after departing from Gaya jn?

A. 8:25 hr B. 8:30 hr C. 8:35 hr

D. 8:45 hr E. 8:50 hr

9. What is the approximate average speed of train between Asansol jn to Mughal Sarai jn?

A. 71.87 kmph B. 75.50 kmph C. 69.73 kmph

D. 59.56 kmph E. None of these

10. Distance Between which two station is third lowest?

A. Howrah jn to Asansol jn B. Asansol jn to Gaya jn

C. Gaya jn to Mughal Sarai jn D. Mughal Sarai jn to Allahabad jn

E. Allahabad jn to Delhi jn

SET 3

The following table given below gives the information about the number of cars (in '00s) of different models and colours sold in Delhi, Mumbai, and Kolkata.

Models	City								
	Delhi			Mumbai			Kolkata		
	Black	White	Silver	Black	White	Silver	Black	White	Silver
A	45	40	64	32	8	21	55	42	29
B	50	65	32	63	12	36	64	49	54
C	35	85	18	39	15	42	30	56	72
D	25	41	26	45	16	6	24	77	81
E	20	24	42	12	14	84	48	87	90

11. What is the difference between the cars of model A sold in all the cities together and the cars of model E sold in all the cititesi together?

A. 8300 B. 8700 C. 8500

D. 8900 E. None of these

12. The number of white coloured cars sold in the city Delhi of the models C and D together is equal to the number of Silver cars sold of which two models together in the city Kolkata?

A. A and E B. B and D C. A and D

D. C and B E. None of these

13. What is the difference between the number of black coloured cars sold of model B,C and E together in Mumbai and the number of white coloured cars of model A and D together in Kolkata?

A. 1500 B. 500 C. 900

D. 1200 E. None of these

14. The number of white cars sold in Mumbai and Kolkata together is how much more than the the number of white cars sold in Delhi?

A. 12300 B. 12700 C. 11900

D. 12100 E. None of these

15. What is the ratio of silver coloured cars sold of model B and C together in Delhi to the white coloured cars sold of model D and E together in Kolkata?

A. 25 : 81 B. 25 : 83 C. 25 : 82

D. 25 : 84 E. None of these

SET 4

The following chart shows the number of employees in four companies- Microsoft, Samsung, Amazon and Google.

Each company has male and female employees, out of which, some are married and some are unmarried.

Company	Total Employees	Males	Females	Married Males	Unmarried Males	Married Females	Unmarried Females
Microsoft	756	526	–	325	–	–	–
Samsung	–	–	–	215	–	254	–
Amazon	–	159	–	–	–	–	–
Google	224	142	82	–	–	–	–

Note: Some values are missing in the table. Find the values on the basis of given information and answer accordingly.

16. If the number of unmarried females in Microsoft is 2 more than half the number of married females in the same company, find the difference between the unmarried males in Microsoft and unmarried females in Microsoft.

A. 113 B. 153 C. 123

D. 143 E. 133

17. The number of the unmarried males in Samsung is 26 more than the number of married males in the same company. The number of unmarried males are more than unmarried females in Samsung by 122. Find the total number of employees in Samsung.

A. 809 B. 819 C. 829

D. 839 E. 899

18. Number of females in Amazon is 147 more than the number of females in Microsoft. If the sum of married males and married females in Amazon is 115, then find the sum of unmarried males and unmarried females in Amazon.

A. 411 B. 421 C. 321

D. 381 E. 391

19. If in Microsoft, the total number of employees is 40% more than that of the Amazon and the ratio between the number of unmarried females in Google to the total number of employees in Amazon is 1 : 18, then find the total number of unmarried females in Google.

A. 25 B. 20 C. 24

D. 30 E. 52

20. The number of married females and unmarried females in Google are equal. If the number of married males in Google is 5 more than the number of married females in Google, then find the difference between unmarried males and unmarried females in Google.

A. 55 B. 65 C. 75

D. 50 E. 52

21. The number of the married males in Google is 46. If 124 males from Microsoft of whom 62 are married, are transferred to Google, then find the new number of unmarried males in Google.

A. 188 B. 178 C. 158

D. 168 E. 138

SET 5

There are seven pipes connected to a tank out of which four are inlet pipes i.e. A, C, E and F and three are outlet pipes i.e. B, D and G. Pipes B and E together can fill the empty tank in 90 hours. Pipe A is 50% more efficient than pipe D. Pipes E and F together can fill the empty tank in 36 hours. Pipe E is 10% less efficient than Pipe C. Pipes B and G together can empty the full tank in 36 hours. Pipes A and D together can fill the empty tank in 216 hours. Pipes B and F together can fill the empty tank in 180 hours.

22. What is the time (upto one decimal point) taken by all the inlet pipes to fill the tank completely?

A. 16 hours B. 16.6 hours C. 17 hours

D. 17.6 hours E. None of these

23. In how many hours, pipes A and F together can fill the tank?

A. 42 hours B. 36 hours C. 40 hours

D. 35 hours E. 45 hours

24. If all the outlet pipes are opened together, then find the time taken by them to empty the full tank?

A. 32 hours B. 27 hours C. 25 hours

D. 30 hours E. 24 hours

25. What is the time taken by pipes B, C and D together to fill the empty tank?

A. 240 hours B. 250 hours C. 256 hours

D. 270 hours E. 275 hours

26. If the pipes D and E are used as inlet pipes and A and C as outlet pipes. Find the approximate time required to fill the empty tank and empty the filled tank respectively?

A. 31 hours, 31 hours B. 39 hours, 39 hours C. 39 hours, 31 hours

D. 31 hours, 39 hours E. None of these

SET 6

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

Abhishek and Vishal are two friends working in a company. Both live in two different places and their houses are in opposite directions at a distance of 57 km. Their office is situated somewhere between their houses. Vishal leaves for office at 9.45 AM with a speed of 40 km/hr while Abhishek leaves for office at 10.03 AM with a speed of 60 km/h. Both reach office at the same time at [A] AM. After reaching office, both started doing a project which they can do together in 90/11 hours. Vishal alone can do the project in 18 hours but with the help of Vivek, he can complete the project in 72/7 hours. Abhishek and Vivek together can do the same project in [B] hours. In office, Abhishek takes 10/13 hours for lunch break. Abhishek leaves the office on time after completing the project with Vivek. Vivek and Abhishek leave office at the same time and go to a bar where Abhishek and Vivek take [C] and [D] ml of drink respectively. The ratio of alcohol to water in Abhishek's drink is 4: 1 while in Vivek's drink is 11: 2. Both pay a total of Rs. 8280 and the price of each ml of drink is Rs. 18. If Abhishek mixes 60 ml of water in his drink then the quantity of his drink becomes

equal to that of Vivek's drink. After leaving office, Vishal buys a lottery ticket which are numbered from 1 to 72. Vishal buys a ticket in which the number is odd and multiple of 3. The probability that Vishal wins the lottery is [E]. Vishal gets Rs. [F] as lottery price and deposits it at 15% compound interest after investing 52% of prize amount in a business which is started by Abhishek. Vishal will get Rs. 7740 as compound interest after 2 years. Salary of Abhishek is Rs. 3000 per day. Abhishek invests his 24 days' salary in a business and Vishal joins him after 3 months. After one year of completion of business, Abhishek gets a profit of Rs. [G] out of Rs. 51545.

(Note: Office timing for all the employees is same**)**

27. One day, Rajan who also works with Vishal was late for his office by 16 minutes. At what time did Rajan reach his office on that day?

A. 10 : 56 AM B. 10 : 46 AM C. 10 : 36 AM

D. 11 : 16 AM E. 11 : 01 AM

28. What is the office timing?

A. 10 : 30 AM to 9 : 00 PM B. 10 : 30 AM to 7 : 30 PM

C. 10 : 30 AM to 7 : 00 PM D. 10 : 30 AM to 8 : 00 PM

E. 10 : 30 AM to 8 : 30 PM

29. 75% of drink taken by Abhishek is how much more/less than 50% of drink taken by Vivek?

A. 20 ml more B. 18 ml more C. 10 ml less

D. 24 ml less E. 19 ml more

30. If another person Anupam also buys a lottery ticket in the casino and his ticket number is multiple of 8 then find the difference between winning probability of Vishal and Anupam.

A. 1/12 B. 3/34 C. 1/24

D. 5/24 E. 5/72

31. If Vishal deposits his entire lottery prize at 29% simple interest per annum then how much interest will he get after 6 years?

A. Rs. 98000 B. Rs. 87000 C. Rs. 96000

D. Rs. 78000 E. Rs. 92000

32. What is the profit earned by Abhishek?

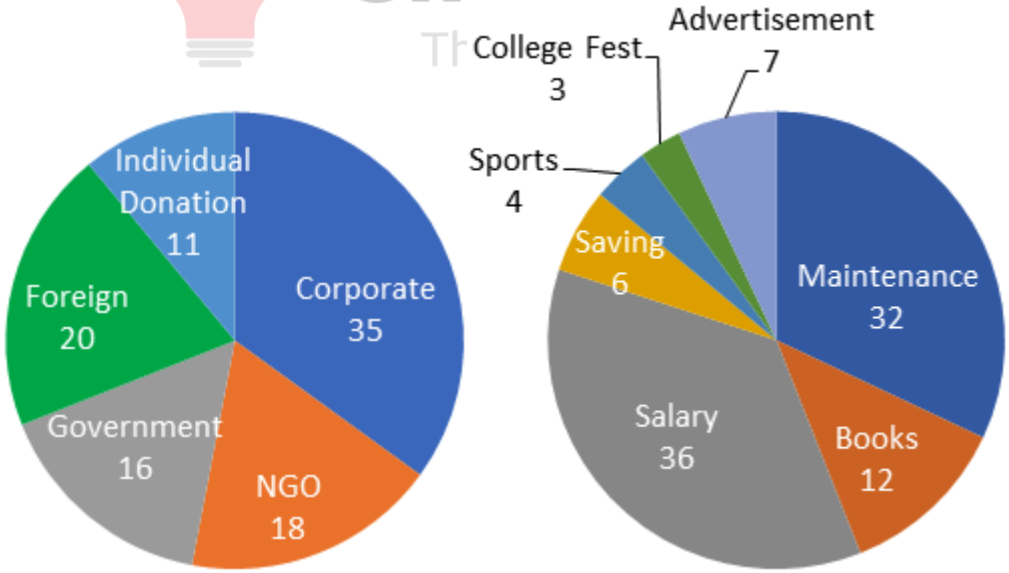
A. Rs. 40560 B. Rs. 40000 C. Rs. 42000

D. Rs. 32000 E. Rs. 68000

SET 7

The pie chart1 given below gives the information about the percentage distribution of the funds received from various sources by XYZ college. The pie chart 2 given below gives the information about the percentage distribution of the expenditures of the college.

Total funds collection = Total expenditures



33. Only foreign donation was spent on sports, college fest and advertisements then what percent of foreign donation was spent on other parts?

A. 30% B. 25% C. 40%

D. 35% E. None of these

34. The expenditures on college fest was Rs. 12000 less than that on sports then corporate funds was how much more than that of foreign funds?

A. Rs. 1.75 lakhs B. Rs. 2.4 lakhs C. Rs. 1.8 lakhs

D. Rs. 1.6 lakhs E. None of these

35. The total individual donation was Rs. 1.32 lakhs then what was the expenditures of the college on the salary payment?

A. Rs. 3.85 lakhs B. Rs. 3.96 lakhs C. Rs. 4.32 lakhs

D. Rs. 4.68 lakhs E. None of these

36. If the college had saved Rs. 30 thousand then what was the funds received from NGO and government together?

A. Rs. 185 thousand B. Rs. 170 thousand C. Rs. 145 thousand

D. Rs. 175 thousand E. None of these

37. What was the ratio between the funds collected from NGO to the expenditures of the college on books?

A. 4 : 3 B. 6 : 4 C. 8 : 5

D. 9 : 7 E. None of these

Correct answer:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
A	D	C	B	E	A	D	A	A	B	C	D	B	D	C	C	C	B	D
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	
A	C	B	C	B	D	C	B	E	C	A	B	A	A	C	C	B	B	

Explanation:

1. Time taken by T1 to fill 20% = 10 minutes

Hence, T1 fills 100% = 50 minutes

Time taken by T2 to fill 10% = 15 minutes

Hence, T2 fills 100% = 150 minutes

Time taken by Empty tap to empty 75% = 60 minutes

Hence, empty Tap empties 100% = 80 minutes

Let total capacity of the tank = LCM (50, 150, 80) = 1200 units

Capacity of T1 = $\frac{1200}{50}$ = 24 units

Capacity of T2 = $\frac{1200}{150}$ = 8 units

Capacity of empty tap = $\frac{1200}{80}$ = 15 units

Filled tank in 1 minute = 24 + 8 – 15 = 17 units

Filled tank in 14 minutes = 14 × 17 = 238 units

Rest units = 1200 – 238 = 962 units

Capacity of T1 + T2 = 24 + 8 = 32 units

Time taken by T1 and T2 = $\frac{962}{32}$ = 30.0625 minutes

Hence, option A is correct.

2. T3 taken time to fill 15% = 45 minutes

Hence, T3 fills 100% = 300 minutes

T4 takes time to fill 30% = 30 minutes

Hence, T4 fills 100% = 100 minutes

Empty tap empties 100% = 50 minutes

Let total capacity of the tank = LCM (300, 100, 50) = 300 units

Capacity of T3 = $\frac{300}{300}$ = 1 units

Capacity of T4 = $\frac{300}{100}$ = 3 units

Capacity of empty tap = $\frac{300}{50}$ = 6 units

Tank filled in 10 minutes = 10 × 1 + 10 × 3 = 40 units

Work by T3 + T4 + Empty = 1 + 3 – 6 = -2 units

Tank emptied in = $\frac{40}{2}$ = 20 minutes

Hence, option D is correct.

3. Time taken by T1 to fill 20% = 10 minutes

Hence, T1 fills 100% = 50 minutes

Time taken by T5 to fill 25 % = 35 minutes

Hence, T5 fills 100% = 140 minutes

Let empty tap empties 100% in y minutes

Let total capacity of tank = LCM (50, 140) = 700 units

Capacity of T1 = $\frac{700}{50}$ = 14 units

Capacity of T5 = $\frac{700}{140}$ = 5 units

Capacity of empty tap = $\frac{700}{y}$ units

Tank filled in 1 minute = $\frac{19 - 700}{y}$ unit

Tank filled in 50 minutes = $50 \times \frac{19 - 700}{y}$ unit

$50 \times \frac{19 - 700}{y} = 700$

19y – 700 = 14y

y = 140 minutes

Hence, option C is correct.

4. T3 taken time to fill 15% = 45 minutes

Hence, T3 fills 100% = 300 minutes

Time taken by T4 to fill 30% = 30 minutes

Hence, T4 fills 100% = 100 minutes

Let capacity of the tank = LCM (150, 100) = 300 units

Capacity of T3 = $\frac{300}{300}$ = 1 units

Capacity of T4 = $\frac{300}{100}$ = 3 units

Capacity of Empty tap = $\frac{300}{150}$ = 2 units

Tank filled in 1 minute = 1 + 3 – 2 = 2 units

Tank filled in 150 minutes = 300 units

So, the capacity of the tank = 300 units

Hence, option B is correct.

5. Time taken by T2 to fill 10% = 15 minutes

Hence T2 fills 100% = 150 minutes

Time taken by T3 to fill 15% = 45 minutes

Hence T3 fills 100% = 300 minutes

Let capacity of tank = LCM(150, 300) = 300 units

Capacity of T2 = $\frac{300}{150}$ = 2 units

Capacity of T3 = $\frac{300}{300}$ = 1 unit

Let the total time = t

(T2 + T3)'s capacity = 2 + 1 = 3 units

$\frac{2 \times t}{2} + \frac{3 \times t}{2} = 300$

5t = 600

t = 120 minutes

Hence, option E is correct.

6. Total distance cover by Howrah Kalka Mail = 1208 km

Total time taken by Howrah Kalka Mail from Howrah to Delhi

= 11:50am – 7:30pm = 16:20 hr = 980 min

The average speed of Howrah Kalka Mail

= (Total distance cover by whole journey) **/** (total time)

$= \frac{1208}{980} \times 60 = 73.96$ kmph

If the average speed of Howrah Kalka Mail increases by 20% then its new speed

$= 73.96 \times \frac{120}{100} = 88.75$ kmph

Time taken by Howrah Kalka Mail during the journey

$= \frac{1208}{88.75} \times 60 = 817$ min

= 13 hr 37 min

The time when the Howrah Kalka Mail will reach to Delhi

= 7:30pm + 13:37 hr = 9:07am

Hence, option (A) is correct.

7. Total passengers travelling from Howrah jn to Asansol jn = 500

Total passengers got down at Asansol jn = 230

Total passengers travelling from Asansol jn to Gaya jn = 500 – 230 + 220 = 490

The number of passengers who boarded the Howrah Delhi Kalka Mail from Mughal Sarai jn = 330

Hence, required ratio = $\frac{490}{330} = \frac{49}{33}$

Therefore, option (D) is correct.

8. Howrah Delhi Kalka Mail departs from Gaya jn at 3:00am

Howrah Delhi Kalka Mail arrives at Mughal Sarai jn at 6:25am

Difference = 6:25 – 3:00 = 3:25 hr

Howrah Delhi Kalka Mail departs from Mughal Sarai jn at 6:40am

Howrah Delhi Kalka Mail arrives at Allahabad jn at 9:20am

Difference = 9:20 – 6:40 = 2:40 hr

Howrah Delhi Kalka Mail departs from Allahabad jn at 9:30am

Howrah Delhi Kalka Mail arrives at Delhi jn at 11:50am

Difference = 11:50 – 9:30 = 2:20 hr

Total difference = 3:25 + 2:40 + 2:20 = 8:25 hr

Hence, Howrah Delhi Kalka Mail takes 8:25 hr to reach Delhi after departing from Gaya jn.

Therefore, option (A) is correct.

9. Distance between Asansol jn to Gaya jn = 454 – 195 = 259 km

Distance between Gaya jn to Mughal Sarai jn = 752 – 454 = 298 km

Total distance between Asansol jn to Mughal Sarai jn

= (Distance between Asansol jn to Gaya jn) + (Distance between Gaya jn to Mughal Sarai jn)

= 259 + 298 = 557 km

Duration between Asansol jn to Gaya jn = 2:50 am – 10:30 pm = 4:20 hr

Duration between Gaya jn to Mughal Sarai jn = 6:25am – 3:00am = 3:25hr

Total duration between Asansol jn to Mughal Sarai jn

= (Duration between Asansol jn to Gaya jn) + (Duration between Gaya jn to Mughal Sarai jn)

= 4:20 + 3:25 = 7:45 hr = 465 min

Hence, required average speed =

$\frac{557}{465} \times 60 = 71.87$ kmph

Therefore, option (A) is correct.

10. Distance between Howrah jn to Asansol jn = 195 km

Distance between Asansol jn to Gaya jn = 454 – 195 = 259 km

Distance between Gaya jn to Mughal Sarai jn = 752 – 454 = 298 km

Distance between Mughal Sarai jn to Allahabad jn = 1020 – 752 = 268 km

Distance between Allahabad jn to Delhi jn = 1208 – 1020 = 188 km

Hence distance between third lowest station is Asansol jn to Gaya jn = 259 km

Hence, option (B) is correct.

11. The sum of the all colour cars sold in all the cities together of the model A = 45 + 40 + 64 + 32 + 8 + 21 + 55 + 42 + 27 = 336 hundreds

the sum of the all colour cars sold in all the cities together of the model E = 20 + 24 + 42 + 12 + 14 + 84 + 48 + 87 + 90 = 421 hundred

The required difference = 421 – 336 = 85 hundred

Required answer = 8500

Hence, option C is correct.

12 The number of white coloured cars sold in the city Delhi of the models A and D together = 41 + 85 = 126 hundred = the number of Silver cars sold of the models B and C together in the city Kolkata

Hence, option D is correct.

13. The number of black cars sold in the city Mumbai of the models B, C, and E together = 63 + 39 + 12 = 114 hundred

the number of white cars sold in the city Kolkata of the models A and D together = 42 + 77 = 119 hundred

Required difference = 119 – 114 = 5 hundred

Hence, option B is correct.

14. The number of white cars sold in Mumbai and Kolkata together = 8 + 12 + 15 + 16 + 14 + 42 + 49 + 56 + 77 + 87 = 376 hundred

The number of white cars sold in Delhi = 40 + 65 + 85 + 41 + 24 = 255 hundred

The required difference = 376 – 255 = 121 hundred

Hence, option D is correct.

15. The total number of silver cars sold of the models B and C together in the city Delhi = 32 + 18 = 50

The number of white cars of the models D and E together in the city Kolkata = 77 + 87 = 164

The required ratio = 50 : 164 = 25 : 82

Hence, option C is correct.

16. Total number of female in Microsoft = 756 – 526 = 230

Let, the number of married female be x

∴ Total number of unmarried female = $\frac{x}{2} + 2$

∴ Total number of female in Microsoft

= $x + \frac{x}{2} + 2 = 230 \Rightarrow x = 152$

⇒ Married female = 152

∴ Unmarried female = 230 – 152 = 78

Unmarried male = total male – married male = 526 – 325 = 201

∴ Required difference = 201 – 78 = 123

Hence, option C is correct.

17. Total number of unmarried male in Samsung = (215 + 26) = 241

Total number of unmarried female in Samsung = (241 – 122) = 119

Total number of males in Samsung

= (Married + Unmarried) = (215 + 241) = 456

Total number of females in Samsung
= (Married + Unmarried) = (254 + 119) = 373

∴ Total number of employees in Samsung

= (Male + Female) = (456 + 373) = 829

Hence, option C is correct.

18. Number of females in Microsoft = (756 – 526) = 230

Number of females in Amazon = (230 + 147) = 377

Number of males in Amazon = 159 (given)

Total number of employees in Amazon = 377 + 159 = 536

Given that married (Male + female) in Amazon = 115

∴ Unmarried (male + female) = total employees - married (male + female)

= (536 – 115) = 421

Hence, option B is correct.

19. Total number of employees in Microsoft = 756

∴ Total number of employees in Amazon

$= \frac{756}{140} \times 100 = 540$

Now,

$$\frac{\text{Unmarried females in Google}}{\text{Total number of employees in Amazon}} = \frac{1}{18}$$

$$\Rightarrow \frac{\text{Unmarried females in Google}}{540} = \frac{1}{18}$$

Unmarried females in Google $= \frac{1}{18} \times 540 = 30$

Hence, option D is correct.

20. Married females in Google = Unmarried females in Google

$= \frac{82}{2} = 41$

∴ Number of married males in Google = (41 + 5) = 46

∴ Number of unmarried males in Google = (142 – 46) = 96

∴ Required difference = (96 – 41) = 55

Hence, option A is correct.

21. Total number of males in Google = 142

Total number of married males in Google = 46

∴ Unmarried Male in Google = (142 – 46) = 96

Unmarried Males in Microsoft, who are transferred to Google = (124 – 62) = 62

∴ New number of unmarried males in Google = (96 + 62) = 158

Hence, option C is correct.

22. Let the capacity of the tank be LCM of (90, 216, 36 and 180) = 1080 litres

Amount of water to be filled by pipes B and E together in one hour

$= \frac{1080}{90}$ = 12 litres

Amount of water to be filled by pipes F and E together in one hour

$= \frac{1080}{36}$ = 30 litres

Amount of water to be filled by pipes B and F together in one hour

$= \frac{1080}{180}$ = 6 litres

Amount of water to be filled by pipes B, F and E together in one hour

$= \frac{12 + 30 + 6}{2}$ = 24 litres

Amount of water filled by F in one hour = 24 – 12 = 12 litres

Amount of water filled by E in one hour = 30 – 12 = 18 litres

Pipe E is 10% less efficient than C

Amount of water filled by C in one hour = 20 litres

Amount of water to be filled by pipes A and D together in one hour

$= \frac{1080}{216} = 5$ litres

Let, the amount of water taken out by pipe D in one hour = x litres

So, the amount of water filled by A in one hour = 1.5x litres

So, 1.5x – x = 5; x = 10 litres

So, the amount of water filled by A in one hour = 1.5x10 litres = 15 litres

So, the amount of water filled by A, C, E and F in one hour = 15 + 12 + 18 + 20 = 65

Time taken by pipes A, C, E and F together to fill the empty tank

$= \frac{1080}{65} = 16.6$ hours

Hence, option B is correct.

23. Let the capacity of the tank be LCM of (90, 216, 36 and 180) = 1080 litres

Amount of water to be filled by pipes B and E together in one hour

$= \frac{1080}{90} = 12$ litres

Amount of water to be filled by pipes F and E together in one hour

$= \frac{1080}{36} = 30$ litres

Amount of water to be filled by pipes B and F together in one hour

$= \frac{1080}{180} = 6$ litres

Amount of water to be filled by pipes B, F and E together in one hour

$= \frac{12 + 30 + 6}{2} = 24$ litres

Amount of water filled by F in one hour = 24 – 12 = 12 litres

Amount of water to be filled by pipes A and D together in one hour

$= \frac{1080}{216} = 5$ litres

Let, the amount of water taken out by pipe D in one hour = x litres

So, the amount of water filled by A in one hour = 1.5x litres

So, 1.5x – x = 5; x = 10 litres

So, the amount of water filled by A in one hour = 1.5x10 litres = 15 litres

Amount of water to be filled by pipes A and F together in one hour

= 12+15=27 litres

Time taken by pipes A and F together to fill the empty tank

$= \frac{1080}{27} = 40$ hours

Hence, option C is correct.

24. Let the capacity of the tank be LCM of (90, 216, 36 and 180)

= 1080 litres

Amount of water taken out by pipes B and G together in one hour

$= \frac{1080}{36} = 30$ litres

Amount of water to be filled by pipes A and D together in one hour

$= \frac{1080}{216} = 5$ litres

Let, the amount of water taken out by pipe D in one hour = x litres

So, the amount of water filled by A in one hour = 1.5x litres

So, 1.5x – x = 5; x = 10 litres

So, the amount of water taken out by D in one hour = 10 litres

Amount of water taken out by pipes B, D and G together in one hour = 10 + 30 = 40 litres

So, the time taken by pipes B, D and G together to empty the full tank

$= \frac{1080}{40} = 27$ hours

Hence, option B is correct.

25. Let the capacity of the tank be LCM of (90, 216, 36 and 180) = 1080 litres

Amount of water to be filled by pipes B and E together in one hour

$= \frac{1080}{90} = 12$ litres

Amount of water to be filled by pipes F and E together in one hour

$= \frac{1080}{36} = 30$ litres

Amount of water to be filled by pipes B and F together in one hour

$= \frac{1080}{180} = 6$ litres

Amount of water to be filled by pipes B, F and E together in one hour

$= \frac{12 + 30 + 6}{2} = 24$ litres

Amount of water filled by B in one hour = 30 – 24 = 6 litres

Amount of water filled by E in one hour = 24 – 6 = 18 litres

Amount of water to be filled by pipes C in one hour

$= \frac{18}{0.90}$ = 20 litres

Amount of water to be filled by pipes A and D together in one hour

$= \frac{1080}{216}$ = 5 litres

Let, the amount of water taken out by pipe D in one hour = x litres

So, the amount of water filled by A in one hour = 1.5x litres

So, 1.5x – x = 5; x = 10 litres

So, the amount of water filled by D in one hour = 10 litres

Amount of water to be filled by pipes B, C and D together in one hour

= 20 – 10 – 6 = 4 litres

Time taken by pipes B, C and D together to fill the empty tank

$= \frac{1080}{4}$ = 270 hours

Hence, option D is correct.

26. Let the capacity of the tank be LCM of (90, 216, 36 and 180) = 1080 litres

Amount of water to be filled by pipes B and E together in one hour

$= \frac{1080}{90}$ = 12 litres

Amount of water to be filled by pipes F and E together in one hour

$= \frac{1080}{36}$ = 30 litres

Amount of water to be filled by pipes B and F together in one hour

$= \frac{1080}{180} = 6$ litres

Amount of water to be filled by pipes B, F and E together in one hour

$= \frac{12 + 30 + 6}{2} = 24$ litres

Amount of water filled by F in one hour = 24 – 12 = 12 litres

Amount of water filled by E in one hour = 30 – 12 = 18 litres

Pipe E is 10% less efficient than C

Amount of water filled by C in one hour = 20 litres

Let, the amount of water taken out by pipe D in one hour = x litres

So, the amount of water filled by A in one hour = 1.5x litres

So, 1.5x – x = 5; x = 10 litres

So, the amount of water filled by A in one hour = 1.5x10 litres = 15 litres

And, amount of water filled by C in one hour = 20 litres

And, amount of water taken out by A and C = 35 litres

Therefore, time required to empty the filled tank

$= \frac{1080}{35} = 31$ hours

Also, the amount of water filled by D and E in one hour= 28 litres

Therefore, time required to fill the empty tank

$= \frac{1080}{28} = 39$ hours

Hence, option C is correct.

27. Let the distance between Vishal's home and office be 'x'

Then, distance between Abhishek's home and office will be '57 – x'

So, distance travelled by Vishal in 18 minutes

$= \frac{18}{60} \times 40 = 12$ km

Let, the time taken by Abhishek to reach office

$= \frac{57 - x}{60}$

So, $\frac{x - 12}{40} = \frac{57 - x}{60}$

$3x - 36 = 114 - 2x$

$5x = 150$; $x = 30$

So, $\frac{57 - 30}{60} \times 60 = 27$ minutes

[A] = 10 : 03 + 0 : 27 = 10 : 30 AM

Rajan reached office at 10 : 30 + 0 : 16 = 10 : 46 AM

Hence, option B is correct.

28. Part of the project done by Abhishek in a day

$= \frac{11}{90} - \frac{1}{18} = \frac{11 - 5}{90} = \frac{6}{90} = \frac{1}{15}$

Time taken by Abhishek to do the project alone = 15 hours

Part of project done by Vivek in a day

$= \frac{7}{72} - \frac{1}{18} = \frac{7 - 4}{72} = \frac{3}{72} = \frac{1}{24}$

Time taken by Vivek to do the project alone = 24 hours

Part of project done by Abhishek and Vivek in a day

$= \frac{1}{15} + \frac{1}{24} = \frac{8+5}{120} = \frac{13}{120}$

Time taken by Abhishek and Vivek to do the project

$= [B] = \frac{120}{13}$ hours

Abhishek takes 10/13 hours for lunch break

Office hours $= [B] + \frac{10}{13} = \frac{120}{13} + \frac{10}{13} = \frac{130}{13} = 10$ hours

Office timing = 10 : 30 AM to 8 : 30 AM

Hence, option E is correct.

29. Let, quantity of alcohol and water in Abhishek's drink be '4x' ml and 'x' ml respectively

And, quantity of alcohol and water in Vivek's drink be '11y' ml and '2y' ml respectively

So, (13y + 5x) x 18 = 8280

13y + 5x = 460

Also, 5x + 60 = 13y

From both the equations, we get

x = 40 and y = 20

[C] = 5x = 200 ml

[D] = 13y = 260 ml

75% of 200 = 150 ml

50% of 260 = 130 ml

Required difference = (150 – 130) = 20 ml

Hence, option A is correct.

30. Numbers between 1 to 72 which is odd number and multiple of 3

= {3, 9, 15, 21, 27, 33, 39, 45, 51, 57, 63, 69}

So, [E] = $\frac{12}{72} = \frac{1}{6}$

Numbers between 1 to 72 which is multiple of 8 = {8, 16, 24, 32, 40, 48, 56, 64, 72}

Winning probability of Anupam = $\frac{9}{72} = \frac{1}{8}$

Reqd. difference = $\frac{1}{6} - \frac{1}{8} = \frac{4-3}{24} = \frac{1}{24}$

Hence, option C is correct.

31. Let, [F] = x

So, $0.48x \times \{(1.15)^2 - 1\} = 7740$

$0.1548x = 7740$, $x = 50000$

[F] = 50000

Reqd. interest = $\frac{50000 \times 29 \times 6}{100}$ = Rs.87000

Hence, option B is correct.

32. Let, [F] = x

So, $0.48x \times \{(1.15)^2 - 1\} = 7740$

$0.1548x = 7740$, $x = 50000$

[F] = 50000

Investment of Vishal = 52% of 50000 = Rs.26000

24 days' salary of Abhishek = 24 × 300 = Rs. 72000

Ratio of profit share of Abhishek and Vishal = 72000 × 12 : 26000 × 9 = 48 : 13

$[G] = \frac{48}{61} \times 51545 = 40560$

Hence, option A is correct.

33. Let the total funds collection = the total expenditures = 100x

The foreign donation = 20% of 100x = 20x

The expenditures on sports, college fest and advertisements together = (4 + 3 + 7)% of 100x = 14x

The reqd. answer $= \frac{(20x - 14x) \times 100}{20x} = \frac{6 \times 100}{20} = 30\%$

Hence, option A is correct.

34. Let the total expenditures = 100x

Then, the expenditures on college fest – that on sports = 4% of 100x – 3% of 100x = x = Rs. 12000

Corporate funds = 35% of 100x = 35x

Foreign funds = 20% of 100x = 20x

The required difference = 35x – 20x = 15x = 15 × 12000 = 180,000 = 1.8 lakhs

Hence, option C is correct.

35. Let the total funds collection = the total expenditures = 100x

The total individual donation = 11% of 100x = 11x = 1.32

x = 0.12

The expenditures of college on salary payments = 36% of 100x = 36x = 36 × 0.12 = 4.32 lakhs

Hence, option C is correct.

36. Let the total funds collection = the total expenditures = 100x

Then, saving = 6% of 100x = 6x = 30 thousand

x = 5 thousand

The funds received from NGO and government together = 18% of 100x + 16% of 100x = 34x = 34 × 5 = 170 thousand

Hence, option B is correct.

37. Let the total funds collection = the total expenditures = 100x

The funds collection from NGO = 18% of 100x = 18x

The expenditures of college on books = 12% of 100x = 12x

The required ratio = 18x : 12x = 3 : 2 = 6 : 4

Hence, option B is correct.