

CHAPTER - 1

ALPHABET TEST

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- Sitting Arrangement
- Analytical Reasoning
- Blood Relations Test
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➤ SITTING ARRANGEMENT

❖ EXAMPLES ❖

Ex.1 Read the information carefully and answer the questions based on it.

Five persons are sitting in a row. One of the two persons at the extreme ends is intelligent and other one is fair. A fat person is sitting to the right of a weak person. A tall person is to the left of the fair person and the weak person is sitting between the intelligent and the fat person.

1. Tall person is at which place counting from right?

(A) First	(B) Second
(C) Third	(D) Fourth
2. Person to the left of weak person possesses which of the following characteristics?

(A) Intelligent	(B) Fat
(C) Fair	(D) Tall
3. Which of the following persons is sitting at the centre?

(A) Intelligent	(B) Fat
(C) Fair	(D) Weak

Sol. First information given in the question that one of the two persons at the extreme ends is

intelligent and other one is fair suggest two figures as shown in fig. (1) and (2).

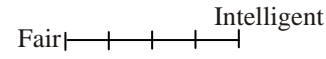


Fig (1)

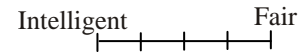


Fig (2)

information that a tall person is sitting to the left of fair person rules out the possibility of fig. (1) as no person in fig. (1) can sit to the left of fair person. Therefore, only fig (2) shows the correct positions of intelligent and fair persons. Now rest of the information regarding the position of other persons can easily be inserted. The final ranking of their sitting arrangement is as shown in fig(3).

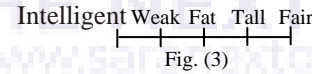


Fig. (3)

On the basis of the final arrangement we can easily find the answer to our questions.

1. Tall person is at second place counting from right. So our answer is option (B).
2. Person left of weak person possesses intelligence. Hence our answer is option (A).
3. Fat person is sitting at the centre. So the answer is (B).

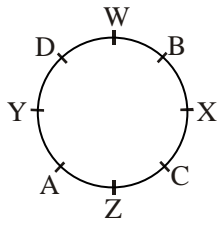
Ex.2 Four men A, B, C and D and four women W, X, Y and Z are sitting round a table facing each other.

- (i) No two men or women are sitting together.
- (ii) W is to the right of B.
- (iii) Y is facing X and is to the left of A.
- (iv) C is to the right of Z.

1. Who are the two persons sitting adjacent to D?

(A) W and Y	(B) X and W
(C) X and Z	(D) W and Z

Sol. Figure given here represents the exact position of all the eight persons. The sitting arrangement fulfills all the conditions given in the question. We observe from here that D is sitting between W and Y.



Hence our answer is (A).

ANALYTICAL REASONING

EXAMPLES

Ex.3 Read the following information carefully and answer the questions given below :

Five cities A, B, C, D and E are famous for their lovely garden, fancy jewellery, educational institute, blue pottery and scents but not in the same order.

- (i) A and C are neither educational centres nor have gardens.
- (ii) B and E are not famous for jewellery or pottery.
- (iii) Scents and jewellery have nothing to do with A.
- (iv) D and E are not famous for garden and jewellery.
- (v) D is not famous for educational institutes.

1. Which of the following cities is famous for gardens ?
(A) A (B) C (C) D (D) B
2. Blue pottery is available in which of the following cities ?
(A) A (B) C (C) E (D) B
3. City E is famous for which of the following features ?
(A) Jewellery (B) Educational institute
(C) Pottery (D) Scents

Sol. This question can be solved easily with the help of Truth Table. Truth Table is an arrangement of the components given in a matrix form with one component in row and other component in column. In our question, components given are city and feature, for which each city is famous. First arrange the components in matrix form with cities in column and features in row.
As per (i) information, cross the possibility of garden and education centre in front of cities A and C.

	Garden	Jwell.	Edu.	Pottery	Scnt
A	x	x	x	✓	x
B	✓	x	x	x	x
C	x	✓	x	x	x
D	x	x	x	x	✓
E	x	x	✓	x	x

- Also the possibility of jewellery and pottery is ruled out in front of cities B and E, as per (ii) information. Similarly, city A is crossed for scent and jewellery as per (iii) information.
- After using first three informations in the table, we see that only block uncrossed in front of city A is one related with pottery. So we know from here that city A is famous for pottery. In this block mark (✓) and cross the row and column of this block because one city is famous only for one feature.
- Using information fourth in the table we know that city B is famous for garden and city C for jewellery. Cross row and column of each symbol (✓) obtained each time. This helps to determine one to one matching.
- Last information helps us to know that city E is famous for educational institute helps us to know that city E is famous for educational institute and city D for scent. The final order of matching of cities and its features is as under :

Cities	A	B	C	D	E
Features	Pottery	Garden	Jewellery	Scnt	Education

On the basis of table all questions can be answered -

1. City B is famous for Garden, hence answer is (D).
2. City A is famous for Pottery, hence answer (A).
3. City E is famous for Educational institute, hence answers is (B).

Ex.4 Read the following information carefully and answer the questions given below :

Four youngmen Raj, Sunder, Tarun and Upal are married to Rekha, Sunita, Tara and Uma and the couples live in Rampur, Sanchi, Tirupati and Udhampur.

- (i) The first letter of names of men, their wives and cities does not match.
- (ii) Sunita is not Raj's wife.
- (iii) Sunder does not live in Rampur or Udhampur and is not Rekha's husband.
- (iv) Upal and Tara do not live in Sanchi.

- Which pair given below is right combination of wife and city for Tarun?
(A) Sunita, Tirupati (B) Tara, Sanchi
(C) Uma, Rampur (D) Rekha, Sanchi
- Who among the following is the wife of Upal?
(A) Rekha (B) Sunita
(C) Tara (D) Uma
- Which of the following is the correct pair of husband and wife ?
(A) Upal, Sunita (B) Raj, Tara
(C) Sunder, Uma (D) All the above

Sol. This question is the same as the previous one but here in this question three components—Husband, Wife and City are given instead of two components as in the previous questions. First, arrange these components in Truth Table with Husband in column and Wife & City in row as under :

H u s b a n d	Wives				Cities			
	Rekha	Sunita	Tara	Uma	Ramp.	Sanc.	Tiru.	Udham.
Raj	x	x	✓	x	x	x	x	✓
Sunder	x	x	x	✓	x	x	✓	x
Tarun	✓	x	x	x	x	✓	x	x
Upal	x	✓	x	x	✓	x	x	x

- With the help of first information, it can be concluded that Raj can not be married with Rekha and does not live in Rampur, Sunder can not be married with Sunita nor does he live in Sanchi, Tarun can not be married with Tara nor does he live in Tirupati and Upal cannot be married with Uma nor does he live in Udhampur. On the basis of this information, cross the respective block.
- Using second information, cross the possibility of matching of Sunita with Raj.
- Third information rules out the matching of Sunder with Rampur, Udhampur and Rekha.
- Fourth information denies the matching of Upal with Sanchi. The part of this information, which denies the matching of Tara and Sanchi, can not be used in the Table now unless the husband of Tara is known. So keep the information to be used later on.
- After using all these informations, we see that only city left in front of Sunder is "Tirupati" so, mark (✓) in this block crossing row and

column of city to ensure one to one matching. As a result, we know that Upal lives in Rampur.

- Using information fourth that Tara does not live in Sanchi and information first again, we get the matching of Husband, Wife and City as under :

Husbands	Tarun	Upal	Raj	Sunder
Wives	Rekha	Sunita	Tara	Uma
Cities	Sanchi	Rampur	Udhampur	Tirupati

On the basis of the above table, we can answer the questions :

- The correct matching of pairs is Rekha and Sanchi. Therefore, answer is (D).
- The wife of Upal is Sunita. Hence answer is (B).
- All the combinations given in the alternatives are correct. Therefore, answer is (D).

➤ BLOOD RELATIONS TEST

The following table will be very useful for solving the questions on blood relations.

1.	Grandfather's son : Father or uncle.
2.	Grandmother's son : Father or uncle.
3.	Grandfather's only son : Father
4.	Grandmother's only son : Father
5.	Mother's or Father's mother : Grandmother.
6.	Mother's or Father's father : Grandfather
7.	Grandfather's only daughter-in-law : Mother
8.	Grandmother's only daughter-in-law : Mother
9.	Mother's or Father's son : Brother
10.	Mother's or Father's daughter : Sister
11.	Mother's or Father's brother : Uncle
12.	Mother's or Father's sister : Aunt
13.	Husband's or wife's sister : Sister-in-law
14.	Husband's or wife's brother : Brother-in-law
15.	Son's wife : Daughter-in-law
16.	Daughter's husband : Son-in-law
17.	Brother's son : Nephew
18.	Brother's daughter : Niece
19.	Uncle or Aunt's son or daughter : Cousin.
20.	Sister's husband : Brother-in-law
21.	Brother's wife : Sister-in-law

❖ **EXAMPLES** ❖

Ex.5 Pointing to a man in a photograph, a man said to a woman, "His mother is the only daughter of your father." How is the woman related to the man in the photograph ?

- (A) Sister (B) Mother
(C) Wife (D) Daughter

Sol. From the information given in the question, it is clear that, the only daughter of the woman's father is the woman herself, and hence the man in the photograph is her son. Therefore, the woman is the mother of the man in the photograph. The answer is (B).

Ex.6 Pointing to a man in a photograph, a woman said, "The father of his brother is the only son of my grandfather." How is the woman related to the man in the photograph ?

- (A) Mother (B) Aunt
(C) Daughter (D) Sister

Sol. From the information, it is clear that the only son of woman's grandfather is the father of the woman and the father of the man's brother is the father of the man. On combining these two information together a single information emerges that the man's father is the woman's father. Hence woman is the sister of the man in the photograph. The answer is (D).

Ex.7 Introducing Asha to guests, Bhaskar said, "Her father is the only son of my father." How is Asha related to Bhaskar ?

- (A) Daughter (B) Mother
(C) Sister (D) Niece

Sol. The only son of Bhaskar's father is the Bhaskar himself. This means that Bhaskar is the father of Asha. Hence, Asha is the daughter of Bhaskar. Therefore, answer is (A).

Ex.8 $S \times T$ means that S is the father of T, $S + T$ means that S is the mother of T, $S - T$ means that S is the sister of T. On the basis of this information, you have to select the option which shows that A is the grandfather of T.

- (A) $A \times S \times B - T$ (B) $A \times B + C - T$
(C) $A + C - T$ (D) $A + B - C \times T$

Sol. Option (A) represents that A is the grandfather of T

- (i) $B - T = B$ is the sister of T.
(ii) $S \times B = S$ is the father of B, here S will be father of T [from information (i)]
(iii) $A \times S = A$ is the father of S, hence A will be grandfather of B.

➤ **CALENDER**

(i) **Odd days**

We know that a week contains 7 days counting from Monday to Sunday. So, any number of days, which are more than complete number of a week in a given period are called odd days. For example a period of 10 days contains 3 odd days, 11 days contains 4 odd days, 12 days contains 5 odd days. But period of 14 days contains zero odd day.

Therefore, in finding number of odd days in a given period of time, one has to divide that period by 7. If it is completely divisible by 7, it contains zero odd day and if it is not divisible by 7 then remaining number of days are the odd days.

(ii) **Leap year**

Every year which is divisible by 4 is called a leap year. But every century which is divisible by 4 is not a leap year. Every fourth century is a leap year. For example 400, 800, 1200, 1600.....are all leap years but centuries like 100, 300, 500, 600.....are not leap years.

An ordinary year has 365 days i.e.
(52 weeks + 1 day)

A leap year has 366 days i.e.
(52 weeks + 2 day)

When we divide 365 (an ordinary year) by 7, we get remainder 1, it means that has 1 odd day. Like wise 366 days (leap year) has 2 odd days.

A century has 100 years and every fourth year is a leap year. We can break a century in the leap year as follows :

4, 8, 12, 16, 20.....96.

Now number of terms contained by the above series.

$$96 = a + (n - 1) d$$

[Arithmetic progression where a = first term, d = common difference]

$$96 = 4 + (n - 1)4$$

$$92 = (n - 1)4$$

$$(n - 1) = \frac{92}{4} = 23$$

$$n = 24$$

Therefore, a century has 76 ordinary years
100 years = 24 leap year + 76 ordinary year
= (24 × 366 + 76 × 365) days

$$= 36524 \text{ days} = \frac{36524}{7} \text{ weeks}$$

$$= 5217 \text{ weeks} + 5 \text{ days}$$

$$= 5 \text{ odd days.}$$

So, 100 years contain 5 odd days
 200 years contain 10 odd days or 3 odd days
 300 years contain 15 odd days or 1 odd day
 400 years contain 0 odd day.
 Like wise years 800, 1200, 1600, 2000
 contain zero odd day.

Counting of day in respect of odd day :

Day :	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
Odd day :	1	2	3	4	5	6	7

❖ **EXAMPLES** ❖

Ex.9 Find the day of the week on :

- (a) 27th Dec. 1985
- (b) 15th Aug. 1947
- (c) 12th Jan. 1979

Sol.(a) 27th December 1985 has (1984 years, 11 months and 27 days).

Now 1600 years have 0 odd day
 300 years have 1 odd day
 84 year contains
 = (21 leap years and 63 ordinary years)
 = (21 × 366 + 63 × 365) days
 = (7686 + 22995) = 30681 days = 4383 weeks
 i.e. 84 years contains 0 odd day.
 11 months and 27 days = 361 days
 51 weeks + 4 days = 4 odd days.
 = 4 + 1 = 5

Therefore,

27 December 1985 has (4 + 1) = 5 odd days.

Now counting Sunday as 0 odd day, Tuesday as 2 odd day, and so on. Friday will have 5 odd day. Therefore, 27th December 1985 will be Friday.

- (b) 15th August 1947
 (1946 years, 7 months and 15 days)
 Now 1600 years have 0 odd day
 300 years have 1 odd day
 1900 years have 1 odd day
 46 years have (11 leap years and 35 ordinary years)

= (11 × 366 + 35 × 365) days = 16801 days
 = (2400 weeks + 1 day) = 1 odd day.
 7 months and 15 days = 227 days
 (32 weeks + 3 days) = 3 odd days
 (1946 years + 7 months + 15 days)
 have (1 + 1 + 3) = 5 odd days
 Which is Friday.

(c) 12th Jan. 1979 = (1978 years + 12 days)

Now, 1600 years have 0 odd days
 300 years have 1 odd day
 78 years have
 (19 leap years + 59 ordinary years)
 (19 × 366 + 59 × 365) day = 28489 days
 = 4069 weeks + 6 days = 6 odd days
 12 days = 5 odd days

∴ Total number of odd days = (1 + 6 + 5)
 = 12 = 5 odd days.

So, the day on 12th January 1979 was Friday.

Ex.10 On what days of July 1776 did Sunday fall ?

Sol. First of all find the day on 1st July 1776.

1st July 1776 =
 (1775 years + 6 months + 1 days)
 Now, 1600 years have 0 odd days
 100 years have 5 odd day
 75 year have 18 leap years and 57 ordinary years
 Which have 2 odd days
 1775 years have (0 + 5 + 2) = 7 = 0 odd day
 Now, 6 months + 1 day
 = Jan + Feb + March + April + May + June + 1
 = (31 + 29* + 31 + 30 + 31 + 30) + 1
 = 183 days
 = 1 odd day

∴ 1st July 1776 will be Monday and hence first Sunday for the month of July will fall on 7th. Therefore, other Sunday will fall on 14th, 21st and 28th.

Ex.11 What was the day on 26th January 1950, when first Republic Day of India was celebrated ?

- (A) Monday (B) Tuesday
- (C) Thursday (D) Friday

Sol. 26th January 1950 means
 (1949 years and 26 days)
 1600 years have 0 odd days

300 years have 1 odd day
 49 years have
 (12 leap years and 37 ordinary years)
 $\Rightarrow (12 \times 366 + 37 \times 365)$ days
 $\Rightarrow (4392 + 13505)$ days
 $\Rightarrow (17897)$ days = 2556 weeks + 5 days
 So, 49 years have 5 odd days
 and 26 days have 5 odd days
 Total number of odd days = $0 + 1 + 5 + 5$
 = 11 days = 4 odd days.

Hence the day on 26th January 1950 was Thursday.

Ex.12 What is the number of odd days in a leap year?
 (A) 1 (B) 2 (C) 3 (D) 4

Sol. A leap year has 366 days
 Now if we divide 366 by 7 it gives 2 as remainder.
 hence number of odd days in 366 days is 2.

Ex.13 Prove that the calendar for 1990 will serve for 2001 also.

Sol. The number of odd days between 31st Dec. 1989 and 31st Dec. 2000. The sum of odd days should be zero.

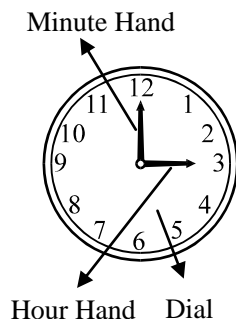
Odd days are calculated as below :

Years	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Odd days	1	1	2	1	1	1	2	1	1	1	2

Sum of odd days = 14 i.e. 0 odd days.

CLOCKS

The dial of the clock is numbered from 1 to 12 in such a way that each subsequent number is equidistant (15 minutes space apart) from the preceding number. It has two needles known as minute hand and hour hand. The distance between two consecutive numbers is 5 minutes. It means that the circumference of the clock measures 60 minutes space. In this way, by traveling 60 minutes space, the minute hand gains 55 minutes on the hour hand.



Properties of Clock

- In 60 minutes the minute hand gains 55 minutes on the hour hand.
- A clock is said to be too fast when it shows time more than that of shown by a correct clock. Likewise, a clock is said to be too slow when it shows time less than that of shown by a correct clock.
- Both the hands of clock are at right angle (when the distance between two hand measures 90°) when they are 15 minutes space apart. This situation occurs twice in one hour.
- Both the hands of a clock are opposite to each other when they are 30 minutes space apart. This situation occurs once in a hour.
- The hands of the clock are in the same straight line when they are coincident or opposite to each other.

❖ **EXAMPLES** ❖

Ex.14 At what time between 7 and 8 will the hands of a clock be in the same straight line, but not together ?

- (A) 5 minutes past 7
 (B) $5 \frac{2}{11}$ minutes past 7
 (C) $5 \frac{3}{11}$ minutes past 7
 (D) $5 \frac{5}{11}$ minutes past 7

Sol.

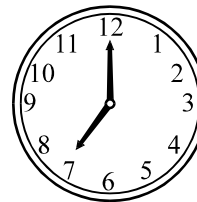


Fig-1

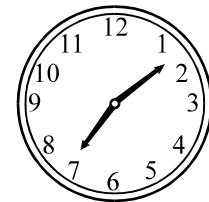


Fig-2

Figure (1) shows the positions of hands of the clock at 7 and figure (2) shows the positions of hands of clock when both the hands are opposite in the straight line. From figure (1), it is clear that both the hands are 25 minute apart

and to be in the straight line both the hands have to be 30 minutes apart.

Now as per properties of the clock, minute hand gains 55 minute space in 60 minutes.

Hence it will gain 5 minutes space in $\left(\frac{60}{55} \times 5\right)$

minutes or $5\frac{5}{11}$ minutes.

Therefore, the hands are in the same straight line, but not together at $5\frac{5}{11}$ minutes past 7.

Ex.15 At what time between 5.30 and 6 will the hands of a clock be at right angle ?

- (A) $43\frac{5}{11}$ minutes past 5
- (B) $43\frac{7}{11}$ minutes past 5
- (C) 40 minutes past 5
- (D) 45 minutes past 5

Sol.

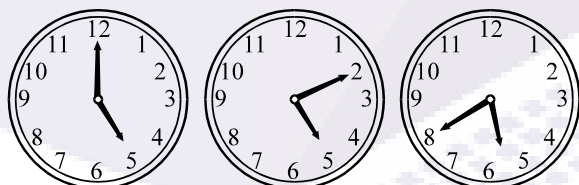


Fig-1 Fig-2 Fig-3

At 5 both the hands are 25 minutes apart and to be at right angle both the hands have to be 15 minutes apart as shown in figure (2) and figure (3). Since we have to take the position of clock between 5.30 and 6 therefore, the positions of hands of clock as per figure (3) is our answer. Now it is clear from figure (1) and figure (3) that minute hand will have to travel $(25 + 15) = 40$ minutes space in order to form a right angle with the hour hand.

55 minutes space is gained in 60 minutes. Therefore, 40 minutes space will be gained in $\left(\frac{60}{55} \times 40\right)$ minutes or $43\frac{7}{11}$ minutes.

Therefore, the hands are at right angle at $43\frac{7}{11}$ minutes past 5.

So, the correct option is (B).

Ex.16 At what time between 4 and 5 will the hands of a watch point in opposite direction ?

- (A) 45 minutes past 4
- (B) 40 minutes past 4
- (C) $50\frac{4}{11}$ minutes past 4
- (D) $54\frac{6}{11}$ minutes past 4

Sol.

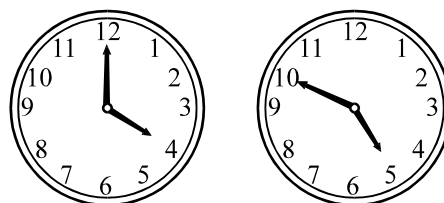


Fig-1 Fig-2

As 4 o' clock both the hands are 20 minutes apart and for having in the opposite direction they have to be 30 minutes apart.

From figure (1) and (2) it is clear, that minute hand has to travel $(20 + 30)$ minutes space in order to be in opposite direction to each other.

Now 55 minutes space is gained in 60 minutes. Therefore, 50 minutes space will be gained in $\left(\frac{60}{55} \times 50\right)$ minutes or $54\frac{6}{11}$ minutes.

Hence, the hands of the clock will be in opposite direction at $54\frac{6}{11}$ minutes past 4.

Therefore, (D) is the answer.

Ex.17 A watch, which gains uniformly, is 2 minutes slow at noon on Monday, and in 4 minutes, 48 seconds fast at 2 P.M. on the following Monday. What time it was correct ?

- (A) 2 p.m. on Tuesday
- (B) 2 p.m. on Wednesday
- (C) 3 p.m. on Thursday
- (D) 1 p.m. on Friday

Sol. Time from Monday noon (12 p.m.) to 2 p.m. the following Monday = 7 days 2 hours = 170 hours

Now, the watch gains $\left(2 + 4\frac{4}{5}\right)$ minutes from Monday (12 p.m.) to 2 p.m. on the following Monday.

or in other words, the watch gains $\frac{34}{5}$ minutes in 170 hours,

Therefore, it will gain 2 minutes in $\left(\frac{170 \times 5}{34} \times 2\right)$ hours = 50 hours = 2 days 2 hours.

Therefore, the watch is correct after 2 days 2 hours from Monday noon or at 2 p.m. on Wednesday. So the correct option is (B).

Ex.18 A clock is set right at 5 a.m. The clock loses 16 minutes in 24 hours. What will be the right time when the clock indicates 10 p.m. on the 4th day ?

- (A) 11.15 p.m. (B) 11 p.m.
(C) 12 p.m. (D) 12.30 p.m.

Sol. Time from 5 a.m. of a particular day to 10 p.m. on the 4th day is 89 hours. Now, the clock loses 16 minutes in 24 hours or in other words we can say that 23 hours 44 minutes in 24 hours or in other 24 hours of the correct clock.

or $\left(23 + \frac{44}{60}\right) \Rightarrow \frac{356}{15}$ hours of this clock = 24 hours of the correct clock.

\therefore 89 hours of this clock = $\left(\frac{24 \times 15}{356} \times 89\right)$ hrs. of correct clock.
= 90 hours of the correct clock

or 89 hours of this clock = 90 hours of the correct clock.

Therefore, it is clear that in 89 hours this clock loses 1 hour and hence the correct time is 11 p.m. When this clock shows 10 p.m.

Ex.19 How many times do the hands of a clock coincide in a day ?

- (A) 24 (B) 22 (C) 21 (D) 20

Sol. From the properties of the clock we know that hands of a clock coincide once in every hour but between 11 o' clock and 1 o' clock they coincide only once. Therefore, the hands of a clock coincide 11 times in every 12 hours. Hence they will coincide (11×2) 22 times in 24 hours. So our answer is (B).

Ex.20 How many times are the hands of a clock at right angles in a day ?

- (A) 24 (B) 48 (C) 22 (D) 44

Sol. We know that hands of a clock are at right angle twice in every hour. But two positions of the hands of clock i.e. at 3 o' clock and 9 o' clock are identical. So, they are at right angles 22 times in 12 hours and therefore, in 24 hours or in a day they are at right angle 44 times. So the answer is (D).

Ex.21 Find what time between 8 and 9 o' clock will the hands of a clock be in the same straight line but not together ?

- (A) $10\frac{10}{11}$ min. past 8 (B) $50\frac{10}{11}$ min. past 8
(C) $10\frac{12}{11}$ min. past 8 (D) 10 min. past 8

Sol.[A]

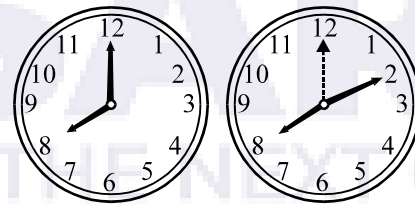


Fig-1

Fig-2

Figure (1) shows the positions of the hands of the clock and it is clear that they are 20 minutes apart. To be in the straight line they have to be 30 minutes apart. So the minute hand will have to move 10 minutes space in order to be 30 minutes apart from the four hand.

65 minutes are gained in 60 minutes.

10 minutes will be gained in $\frac{60}{55} \times 10$

$$= \frac{12}{11} \times 10 \text{ minutes}$$

Therefore, the hands will be at right angle but not together at $10\frac{10}{11}$ minute past 8.

Ex.22 At what time between 3 and 4 o' clock will the hands of a clock coincide ?

- (A) 15 min. past 3 (B) $15\frac{12}{11}$ min. past 3
(C) $16\frac{4}{11}$ min. past 3 (D) $16\frac{2}{11}$ min. past 3

Sol.[C]

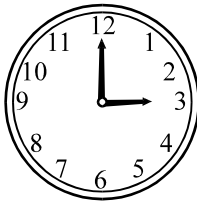


Fig-1

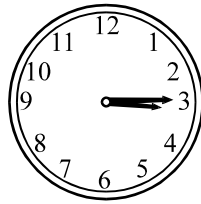


Fig-2

At 3 o'clock both the hands of the clock are 15 minutes apart. Hence in order to be together minute hand will have to cover the distance of 15 minutes in order to find a position as shown in figure (2).

Now, 55 minutes are gained in 60 minutes.

15 minutes will be gained in $\left(\frac{60}{55} \times 15\right)$ minute

$$= \left(\frac{12}{11} \times 15\right) \text{ minute} = \frac{180}{11} \text{ or } 16\frac{4}{11} \text{ minute}$$

Therefore, the hands will coincide at $16\frac{4}{11}$ min past 3.

Ex.23 A clock is set right at 8 a.m. The clock gain 10 minutes in 24 hours. What will be the right time when the clock indicates 1 p.m. on the following day ?

- (A) 11.40 p.m. (B) 12.48 p.m.
(C) 12 p.m. (D) 10 p.m.

Sol.[B] Time from 8 a.m. of a particular day 1 p.m. on the following day = 29 hours. Now the clock gains 10 minutes in 24 hours, it means that 24 hours 10 minute of this clock is equal to 24 hours of the correct clock.

$\frac{145}{6}$ hours of this clock = 24 hours of the correct clock.

$$29 \text{ hours of this clock} = \frac{24}{145} \times 6 \times 29$$

= 28 hours, 48 minute of correct clock.

29 hours of this clock = 28 hours 48 minute of the correct clock.

It means that the clock in questions is 12 minute faster than the correct clock.

Therefore, when clock indicates 1 p.m. the correct time will be 48 minutes past 12.

Ex.24 At what time between 4 and 5 o'clock will the hands of a clock be at right angle ?

- (A) 30 min. past 4 (B) $14\frac{3}{4}$ min. past 4
(C) $38\frac{2}{11}$ min. past 4 (D) 33 min. past 4

Sol.[C] Between 4 and 5 o'clock the hands of the clock will be at right angle twice. First situation will occur when minute hand is 5 minutes space behind the hour hand and second when minute hand is 15 minute space ahead of the hour hand.

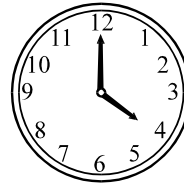


Fig-1

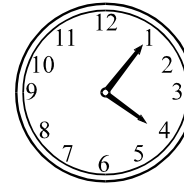


Fig-2

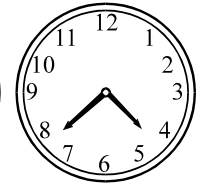


Fig-3

Figure-2 shows the position when minute hand is 15 minute space behind the hour hand. To come at this position minute hand has travelled 5 minute space from the position at 4 o'clock figure (1).

Now, 55 minutes are gained in 60 min.

$$5 \text{ minute will be gained in } \frac{60}{55} \times 5 = \frac{60}{11}$$

It means that hands of the clock will be at right angle at $5\frac{5}{11}$ minute past 5.

Figure-3 shows the position when minute hand is 15 minutes space ahead the hour hand. To come at this position minute hand has travelled 35 minute space from the position at 4 o'clock. (Figure-1).

Now, 55 minutes space are gained in 60 minutes

35 minutes spaces will be gained in

$$\frac{60}{55} \times 35 = \frac{420}{11} \text{ minutes}$$

$$= 38\frac{2}{11} \text{ minutes.}$$

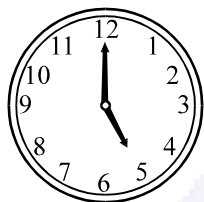
It means that second position will come at $38\frac{2}{11}$ minute past 4.

Now in our options $38\frac{2}{11}$ minutes past 4 is available as option (C). Hence it is our answer.

Ex.25 At what time between 5 and 6 are the hands of a clock coincident ?

- (A) 22 minutes past 5
- (B) 30 minutes past 5
- (C) $22\frac{8}{11}$ minutes past 5
- (D) $27\frac{3}{11}$ minutes past 5

Sol.[D] From the figure we find what minute hand is 25 minutes space apart from hour hand. In order to coincide it has to gain 25 minute space.



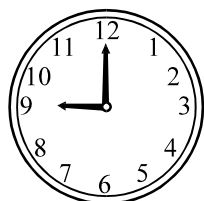
Now, 55 minutes are gained by minute hand in 60 minutes.

25 minutes will be gained in $\frac{60}{55} \times 25 = 27\frac{3}{11}$ minutes. So, the hands will coincide at $27\frac{3}{11}$ minutes past 5.

Ex.26 At what time between 9 and 10 will the hands of a watch be together ?

- (A) 45 minutes past 9
- (B) 50 minutes past 9
- (C) $49\frac{1}{11}$ minutes past 9
- (D) $48\frac{2}{11}$ minutes past 9

Sol.[C] Both the hands are 15 minutes space part at 9 o'clock.



To be together between 9 and 10, minute hand has to gain 45 minutes.

Now, minute hand gains 55 minute in 60 minutes.

It will gain 45 minutes in $\frac{60}{55} \times 45 = 49\frac{1}{11}$ minutes. Therefore, the hands are together at minute past 9.

Ex.27 How many times do the hands of a clock point towards each other in a day ?

- (A) 24
- (B) 20
- (C) 12
- (D) 22

Sol.[D] The hands of a clock point towards each other 11 times in every 12 hours (because between 5 and 7, they point towards each other once at 6 o'clock). Therefore, in a day the hands points 22 times towards each other.

Ex.28 At what angle the hands of a clock are inclined at 15 minutes pasts ?

- (A) $72\frac{1}{2}^\circ$
- (B) $67\frac{1}{2}^\circ$
- (C) $58\frac{1}{2}^\circ$
- (D) 64°

Sol.[B] At 15 minutes past 5, the minute hand is at 3 and hour hand slightly ahead of 5. Now, the angle through which hour hand shifts in 15

$$\text{minutes} = \left(15 \times \frac{1}{2}\right)^\circ = 7\frac{1}{2}^\circ$$

$$\therefore \text{Angle at 15 minutes past 5} = \left(60 + 7\frac{1}{2}\right)^\circ = 67\frac{1}{2}^\circ$$

EXERCISE

Sitting Arrangement

Directions :

Read the information carefully and answer the questions based on it.

Four ladies A, B, C & D and four gentlemen E, F, G & H are sitting in a circle round a table facing each other.

- (i) No two ladies or two gentlemen are sitting side by side.
- (ii) C, who is sitting between G and E, is facing D.
- (iii) F is between D and A and is facing G.
- (iv) H is to the right of B.

- Q.1** Who is sitting to the left of A ?
(A) E (B) F (C) G (D) H
- Q.2** E is facing whom ?
(A) F (B) B (C) G (D) H
- Q.3** Who are immediate neighbour of B ?
(A) G and H (B) E and F
(C) E and H (D) F and H

Directions :

Read the information carefully and answer the questions based on it.

Six persons are sitting in a circle. A is facing B. B is to the right of E and left of C. C is to the left of D. F is to the right of A. Now D exchanges his seat with F, and E with B.

- Q.4** Who will be sitting to the left of D ?
(A) B (B) D (C) E (D) A
- Q.5** Who will be sitting of the left of C ?
(A) E (B) F (C) A (D) B
- Q.6** Who will be sitting opposite of A ?
(A) E (B) F (C) D (D) B
- Q.7** Who will be sitting opposite of C ?
(A) C (B) D (C) B (D) A

Directions :

Six persons P, Q, R, S, T and U are sitting in a circle facing on another front to front. P is sitting in front of Q. Q is sitting to the right of T and left of R. P is to the left of U and right of S.

- Q.8** Who is sitting opposite to R ?
(A) P (B) Q (C) S (D) U

- Q.9** Who is sitting opposite to S ?
(A) U (B) T
(C) R (D) can't be determined

- Q.10** Who is sitting between P and R ?
(A) S (B) T (C) U (D) Q

- Q.11** If the positions of P and R are changed, who will be sitting between S and U ?
(A) P (B) R (C) Q (D) T

Directions :

Read the information carefully and answer the questions based on it.

A, B, C, D, E, F and G are playing cards sitting in a circle.

- (i) F is 2nd to the right of G.
- (ii) B is neighbour of F but not of E.
- (iii) E is neighbour of C, is 4th to the right of G.
- (iv) D is between E and A.

- Q.12** Who is fourth to the left of G ?
(A) D (B) E
(C) C (D) can't be determined

- Q.13** Who is to the left of G ?
(A) A (B) C
(C) B (D) can't be determined

- Q.14** Who are the neighbours of F ?
(A) E and C (B) F and B
(C) A and B (D) C and B

Directions :

Read the information carefully and answer the questions based on it.

- (i) Eight friends A, B, C, D, E, F, G and H are seated in a circle facing centre.
- (ii) D is between B and G and F is between A & H
- (iii) E is second to the right of A

- Q.15** Which of the following is A's position ?
(A) Left of F (B) Right of F
(C) Between E and F (D) Can't be determined

- Q.16** Which of the informations statement are not required to ascertain the position of C ?
(A) (i) above
(B) Either (ii) or (iii) above
(C) (iii) above
(D) All are required

- Q.17** Which of the following is C's position ?
 (A) Between E and F
 (B) Between G and E
 (C) Second to the left of B
 (D) None of these

Directions :

Read the information carefully and answer the questions based on it.

- (i) Six flats on a floor in two rows facing north and south are allotted to P, Q, R, S, T and U.
- (ii) Q gets a north facing flat and is not next to S.
- (iii) S and U get diagonally opposite flats.
- (iv) R next to U, gets a south facing flat and T gets a north facing flat.

- Q.18** Whose flat is between Q and S ?
 (A) T (B) U (C) R (D) P
- Q.19** The flats of which of the other pairs than SU, is diagonally opposite to each other ?
 (A) PT (B) QP (C) QR (D) TS
- Q.20** If the flats of T and P are interchanged, whose flat will be next to that of U ?
 (A) Q (B) T (C) P (D) R
- Q.21** Which of the combinations get south facing flats ?
 (A) URP (B) UPT
 (C) QTS (D) Data inadequate
- Q.22** To arrive at the answers to the above questions, which of the following statements can be dispensed with ?
 (A) None (B) (i) only
 (C) (ii) only (D) (iii) only
- Q.23** There are six houses in a row. Mr. Lal has Mr. Bhasin and Mr. Sachdeva as neighbours. Mr. Bhatia has Mr. Gupta and Mr. Sharma as neighbours. Mr. Gupta's house is not next to Mr. Bhasin or Mr. Sachdeva and Mr. Sharma does not live next to Mr. Sachdeva. Who are Mr. Bhasin's next door neighbour ?
 (A) Mr. Lal and Mr. Bhasin
 (B) Mr. Lal and Mr. Sachdeva
 (C) Mr. Sharma and Mr. Lal
 (D) Only Mr. Lal

Directions :

Read the information carefully and answer the questions based on it.

- (i) Eight persons E, F, G, H, I, J, K and L are seated around a square table two on each side
- (ii) There are three lady members and they are not seated next to each other
- (iii) J is between L and F
- (iv) G is between I and F
- (v) H, a lady member, is second to the left of J
- (vi) F, a male member, is seated opposite to E, a lady member
- (vii) There is a lady member between F and I

- Q.24** Who among the following are the three lady members ?
 (A) E, H and J (B) E, G and J
 (C) G, H and J (D) None of these
- Q.25** Which of the following is true about J ?
 (A) J is a male member
 (B) J is a female member
 (C) Sex of J cannot be determined
 (D) Position of J cannot be determined
- Q.26** Who among the following is seated between E and H ?
 (A) I (B) J
 (C) F (D) None of these
- Q.27** Who among the following is to the immediate left of F ?
 (A) G (B) J
 (C) I (D) Can't be determined
- Q.28** How many persons are seated between K and F?
 (A) One (B) Two
 (C) Three (D) Can't be determined

Directions :

Read the information carefully and answer the questions based on it.

A group of seven singers, facing the audience, are standing in a line on the stage as follows :

- (i) D is to the right of C
- (ii) F is near G
- (iii) B is to the left of F
- (iv) E is to the left of A
- (v) C and B have one person between them
- (vi) A and D have one singer between them

- Q.29** Who is on the extreme right ?
 (A) D (B) F
 (C) G (D) E
- Q.30** If we start counting from the left, on which number is C ?
 (A) 1st (B) 2nd
 (C) 3rd (D) 5th

Analytical Reasoning

Directions :

Read the information carefully and answer the questions based on it.

The members of a Bank are Mr. A, Mr. B, Mrs. C, Miss D, Mr. E and Miss F. The positions they occupy are Manager, Asstt. Manager, Cashier, Steno, Teller and a Clerk, though not necessarily in order. The Asstt. Mangager is Manager's grandson, Cashier is Stenographer's son-in-law. Mr A is bachelor. Miss D is teller's step-sister and Mr. E is Manager's neighbour. Mr B. cannot have a grandson or son-in-law as he is only 20 years old.

- Q.31** Who is the Manager ?
 (A) Mr. A (B) Mrs. C
 (C) Mr. E (D) None of these
- Q.32** Who is Asstt. Manager ?
 (A) Mr. A (B) Miss F
 (C) Mrs. C (D) Mr B
- Q.33** Who is Teller ?
 (A) Miss F (B) Mrs. C
 (C) Mr. A (D) Miss D
- Q.34** Who is Clerk ?
 (A) Mr. B (B) Miss D
 (C) Miss F (D) None of these
- Q.35** Who is the Cashier ?
 (A) Either Mr. A or Mr. B
 (B) Miss F
 (C) Mr. A
 (D) None of these

Directions :

Read the information carefully and answer the questions based on it.

Five women Madhu, Kanchan, Chandni, Sheela and Rekha are married to Doctor, Naval officer, Lawyer, Sales Manager and Engineer. The ladies are Accountant, Teacher and Doctor by profession, while two are housewives.

- (i) One husband and wife have same profession
 (ii) Madhu and Kanchan are not housewives nor they are married to Doctor or Lawyer.
 (iii) Sheela and Rekha are not Teacher or Accountant and their husbands are not Engineer or in Navy.
 (iv) The Sales Manager is not Madhu's or Chandni's husband. His wife is an accountant.
 (v) Rekha is not a Doctor.
 (vi) Chandni is not a Teacher and the Teacher's husband is Naval officer.

- Q.36** Who among following is engaged in doctor's profession with her husband ?
 (A) Sheela (B) Rekha
 (C) Madhu (D) Chandni
- Q.37** Which of the following pairs is the correct match of husband-wife ?
 (A) Naval Officer, Kanchan
 (B) Sales Manager, Madhu
 (C) Lawyer, Sheela
 (D) Engineer, Chandni
- Q.38** Who among the following are house wives ?
 (A) Chandni, Rekha (B) Sheela, Chandni
 (C) Madhu, Rekha (D) Chandni, Madhu
- Q.39** Who is the wife of Engineer ?
 (A) Teacher (B) Accountant
 (C) House wife (D) Doctor
- Q.40** Naval officer is the husband of which lady ?
 (A) Kanchan (B) Rakha
 (C) Chandni (D) Madhu

Directions :

Read the information carefully and answer the questions based on it.

P, Q, R, S, T and U are six students procuring their master's degree in six different subjects- English, History, Philosophy, Physics, Statistics and Maths.

- (i) Two of them stay in hostels, two stay as paying guests and the remaining two stay at their home.
 (ii) R does not stay as paying guest and studies Philosophy.
 (iii) The students studying statistics and History don't stay as paying guest.
 (iv) T studies Maths and S studies Physics.
 (v) U & S stay in hostel. T stays as paying guest and Q stays at home.

- Q.41** Which of the following pair of students stay one each at hostel and at home ?
 (A) U, S (B) S, R
 (C) Q, R (D) Data inadequate
- Q.42** Who studies English ?
 (A) S (B) T, Q
 (C) U (D) None of these
- Q.43** Which of the following pair of students stay at home ?
 (A) P, Q (B) Q, R
 (C) R, S (D) S, T
- Q.44** Which of the following combination of subjects & places of stay is not correct ?
 (A) Physics-Hostel (B) English-Hostel
 (C) Philosophy-Home (D) Maths-P.G.
- Q.45** Which subject does Q studies ?
 (A) History
 (B) Statistics
 (C) History or Statistics
 (D) Data inadequate

Directions :

Read the information carefully and answer the questions based on it.

There are five persons P, Q, R, S and T. One is football player, one is chess player, one is hockey player. P and S are unmarried ladies and do not participate in any game. None of the ladies plays chess or football. There is a married couple in which T is the husband. Q is the brother of R and is neither a chess player nor a hockey player.

- Q.46** Who is the football player ?
 (A) P (B) Q (C) R (D) S
- Q.47** Who is the hockey player ?
 (A) T (B) S (C) R (D) Q
- Q.48** Who is the chess player ?
 (A) S (B) P (C) T (D) R
- Q.49** Who is the wife of T ?
 (A) P (B) Q (C) R (D) S
- Q.50** Which of the following is the correct group of ladies ?
 (A) P, Q and R (B) Q, R and S
 (C) P, Q and S (D) P, R and S

Directions :

Read the information carefully and answer the questions based on it.

There are four persons A, B, C and D. One of them is a Lecturer and plays Football and Cricket. A and B are Accountants. A Plays Badminton. Both the Accountants are Swimmers. D is a Bank clerk. One Accountant also plays Tennis. The Bank clerk plays Carrom and is a Swimmer. All the four persons play two games each and follow one profession.

- Q.51** Who is the Lecturer ?
 (A) A (B) B (C) C (D) D
- Q.52** Who can not swim ?
 (A) A (B) B (C) C (D) D
- Q.53** Who plays Tennis ?
 (A) A (B) B (C) C (D) D
- Q.54** Who plays Badminton and is an Accountant ?
 (A) A (B) B (C) C (D) D
- Q.55** Who plays Tennis and is an Accountant ?
 (A) A (B) B (C) C (D) D

Directions :

Read the information carefully and answer the questions based on it.

- (i) There are five teachers A, B, C, D and E who teach different subjects.
- (ii) B teaches psychology and is ph. D. D teaches sociology and he is also ph. D.
- (iii) Lady teachers neither teach Education nor Management.
- (iv) A and C are not Ph. D and A does not teach equation

- Q.56** Who teaches Management ?
 (A) E (B) D
 (C) A (D) Either B or C
- Q.57** Who teaches Education ?
 (A) A (B) B
 (C) C (D) Can't be determined
- Q.58** Which of the following statements is true ?
 (A) Both ladies are Ph. D
 (B) The person who teaches Management is Ph.D
 (C) All male members are Ph. D
 (D) the teacher, who teaches Sociology, is man
- Q.59** Who teaches Anthropology ?
 (A) A (B) D (C) E (D) B

- Q.60** Who are the male members ?
 (A) ABC (B) BCD
 (C) ACB (D) None of these

Directions :

Read the information carefully and answer the questions based on it.

- (i) A, B, C, D, E and F are six members in the family, there are two pair of couples in the group.
- (ii) There are two Engineers, one Teacher, one Sociologist and two Artists. Both the Engineers are of the same sex.
- (iii) A and C are in the same profession.
- (iv) The teacher is married to the Engineer and the Artist is married to lady Sociologist.
- (v) A is an Artist. E is a male Engineer. Both of them are unmarried.
- (vi) F is B's husband.

- Q.61** Who is married with the Teacher ?
 (A) F (B) C (C) E (D) B
- Q.62** Who is Sociologist by profession ?
 (A) B (B) F
 (C) C (D) None of these
- Q.63** Which of the followings are the pairs of couples?
 (A) FD and BD (B) CD and FB
 (C) CD and FD (D) Can'tbe determined
- Q.64** What is the profession of B ?
 (A) Engineer (B) Teacher
 (C) Sociologist (D) Artist

Directions :

Read the information carefully and answer the questions based on it.

- (i) Five friends A, B, C, D and E wore shirts of green, yellow, pink, red and blue colours and shorts of black, white, grey, blue and green colours.
- (ii) Nobody wore shirt and short of same colour.
- (iii) D wore blue shirt and C wore green short.
- (iv) The one who wore green shirt, wore black short and the one who wore blue short, wore red shirt.
- (v) A wore white short and pink shirt.
- (vi) E did not wear red shirt.

- Q.65** Which colour shirt did C wear ?
 (A) Yellow (B) Blue (C) Green (D) Pink

- Q.66** Which colour short did B wear ?
 (A) Grey (B) Blue (C) White (D) Black

- Q.67** Who wore white short ?
 (A) E (B) B (C) C (D) A

- Q.68** Who wore black short ?
 (A) C (B) E (C) B (D) D

Directions :

Read the information carefully and answer the questions based on it.

- (i) There is a group of five persons A, B, C, D and E.
- (ii) One of them is a Horticulturist, one is Physicist, one is Jouranlist one is an Industrialist and one is an Advocate.
- (iii) Three of them A, C and the Advocate prefer tea to coffee and two of them–B and the Journalist prefer coffee to tea.
- (iv) The Industrialist, D and A are friends of one another but two of them prefer coffee to tea.
- (v) The horticulturist is C's brother.

- Q.69** Who is an Industrialist ?
 (A) A (B) B (C) C (D) D

- Q.70** Which of the following groups include a person who likes tea but is not an Advocate ?
 (A) ACE (B) BCE
 (C) DE (D) None of these

- Q.71** Who is the person who likes coffee but is not the Journalist ?
 (A) A (B) B (C) C (D) D

Blood Relations Test

- Q.72** A told B, "Yesterday I met the only brother of the daughter of my grand mother." Whom did A meet ?
 (A) Cousin (B) Brother
 (C) Nephew (D) Father
- Q.73** Pointing to a man in the park, Naman said. "His son is my son's uncle." How is the man related to Naman ?
 (A) Brother (B) Father
 (C) Uncle (D) Grandfather

- Q.74** Pointing to a man in a photograph Reena said, "His mother's only daughter is my mother." How is Reena related to that man ?
 (A) Nephew (B) Sister
 (C) Nice (D) Wife
- Q.75** Amit said, "This girl is the wife of the grandson of my mother." How is Amit related to the girl?
 (A) Father (B) Father-in-law
 (C) Grandfather (D) Husband
- Q.76** Pointing to a man in a photograph, a woman said, "His brother's father is the only son of my grandfather." How is the woman related to the man in the photograph ?
 (A) Mother (B) Sister
 (C) Aunt (D) Daughter
- Q.77** Pointing to a person, Rohit said to Neha, "His mother is the only daughter of your father." How is Neha related to the person ?
 (A) Aunt (B) Mother
 (C) Daughter (D) wife
- Q.78** Pointing to a man, a woman said. "He is the brother of my uncle's daughter." How is the man related to woman ?
 (A) Cousin (B) Son
 (C) Brother-in-law (D) Nephew
- Q.79** If B says that his mothers is the only daughter of A's mother, how is A related to B ?
 (A) Son (B) Father
 (C) Brother (D) Uncle
- Q.80** Pointing to a lady, a man said. "The son of her only brother is the brother of my wife." How is the lady related to the man ?
 (A) Mother's sister
 (B) Grandmother
 (C) Sister of father-in-law
 (D) Mother-in-law
- Q.81** Introducing a man, a woman said, "He is the only son of my mother." How is the woman related to the man ?
 (A) Mother (B) Cousin
 (C) Niece (D) Aunt
- Q.82** P is the brother of Q and R. S is R's mother. T is P's father. Which of the following statements cannot be definitely true ?
 (A) Q is T's son (B) T is Q's father
 (C) S is P's mother (D) P is S's son
- Q.83** Introducing a man, a woman said, "His wife is the only daughter of my father." How is that man related to the woman ?
 (A) Husband (B) Brother
 (C) Father-in-law (D) Maternal-uncle
- Q.84** A man said to a lady, "Your mother's husband's sister is my aunt." How is the lady related to the man ?
 (A) Daughter (B) Sister
 (C) Granddaughter (D) Mother
- Q.85** Showing the lady in the park, Vineet said, "She is the daughter of my grand father's only son." How is Vineet related to that lady?
 (A) Brother (B) Cousine
 (C) Father (D) Uncle
- Q.86** Introducing a girl, Vipin said, "Her mother is the only daughter of my mother-in-law." How is Vipin related to the girl ?
 (A) Uncle (B) Father
 (C) Brother (D) Husband
- Q.87** 'A + B' means 'A is the son of B', 'A - B' means 'A is the wife of B'. 'A × B' means 'A is the brother of B', 'A ÷ B' means 'A is the mother of B', 'A = B' means 'A is the sister of B'. Which of the following represents P is the maternal-uncle of Q ?
 (A) $R \times P \div Q$ (B) $P \times R \div Q$
 (C) $P + R \div Q$ (D) $P + R \times Q$
- Q.88** If 'P + Q' means 'P is the sister of Q', 'P - Q' means 'P is the mother of Q', 'P × Q' means 'P is the brother of Q', 'P ÷ Q' means 'P is the father of Q'. Which of the following means M is the maternal-uncle of R ?
 (A) $M \times T - R$ (B) $M \div T \times R$
 (C) $M + T \div K - R$ (D) $M \div N + J$
- Q.89** If $S \times T$ means 'S is brother of T', $S + T$ means 'S is the father of T', which of the following shows 'O' is the Cousin of R?
 (A) $R \times T + O$ (B) $R + T \times O$
 (C) $R \times O \times T$ (D) None of these
- Q.90** 'P + Q' means 'P is the brother of Q', 'P - Q' means P is the mother of Q and 'P × Q' means 'P is the sister of Q'. Which of the following means that M is the maternal - uncle of R ?
 (A) $M - R + K$ (B) $M + K - R$
 (C) $M + K \times Q$
 (D) There is no such symbol

- Q.91** In $A + B$ means 'A is the brother of B', $A \div B$ means 'A is the father of B' and $A \times B$ means 'A is the sister of B'. Which of the following means 'M' is the uncle of 'P' ?
 (A) $M \div N \times P$ (B) $N \times P \div M$
 (C) $M + S \div R + P$ (D) $M + K \div T \times P$
- Q.92** Pointing towards a man in the photograph a lady said, "The father of his brother is the only son of my mother." How is the man related to the lady ?
 (A) Brother (B) Son
 (C) Cousin (D) Nephew
- Q.93** Pointing towards a woman in the photograph, Rajesh said, "The only daughter of her grandfather is my wife." How is Rajesh related to that woman ?
 (A) Uncle (Fufa) (B) Father
 (C) Maternal uncle (D) Brother
- Q.94** Pointing towards a man in the photograph, Archana said, "He is the son of the only son of my grandfather". How is he related to Archana?
 (A) Cousin (B) Nephew
 (C) Brother (D) Son
- Q.95** A man said to a woman, "The only sister of your brother is my mother." How is the man related to the woman ?
 (A) Father (B) Son (C) Husband (D) Brother
- Q.96** Pointing towards a lady, a man said, "The father of his brother is the only son of my grandfather." How is the lady related to that man?
 (A) Sister
 (B) Daughter
 (C) Bua (Father's sister)
 (D) Mother-in-law
- Q.97** Pointing to Raman in the photograph, Aditi said, "The only son of his mother is my father". How is Aditi related to Raman ?
 (A) Mother's sister (B) Bua(Father's sister)
 (C) Daughter (D) Niece
- Q.98** Shyama says that father of Rajiv's father is my father. How Shyama is related to Rajiv ?
 (A) Sister
 (B) Mother
 (C) Bua (Father's sister)
 (D) Niece

- Q.99** Introducing a man Neeraj said, "His wife is the only daughter of my wife." How Neeraj is related to that man ?
 (A) Father (B) Grandfather
 (C) Father-in-law (D) Brother
- Q.100** A is the brother of B, C is the brother of A. To establish a relationship between B and C, which of the following information is required?
 (I) Sex of C (II) Sex of B
 (A) Only I is required (B) Only II is required
 (C) Both I and II (D) None of these
- Q.101** The son of M is the father of N and grandfather (Mother's father) of R. S is the daughter of N and sister of B. On the basis of this information, how is M related to B ?
 (A) Grandfather
 (B) Grandmother
 (C) Data inadequate
 (D) Grandmother's mother
- Q.102** Pointing towards a boy, Aruna said to Pushpa, "The mother of his father is the wife of your grandfather (Mother's father)". How Pushpa is related to that boy ?
 (A) Sister (B) Niece
 (C) Cousin sister (D) Wife

Directions :

Read the information carefully and answer the questions based on it.

There are six children playing football namely A, B, C, D, E and F. A and E are brothers. F is the sister of E. C is the only son of A's uncle. B and D are the daughters of the brother of C's father.

- Q.103** How is C related to F ?
 (A) Cousin (B) Brother
 (C) Son (D) Uncle
- Q.104** How many male players are there ?
 (A) One (B) Three
 (C) Five (D) Six
- Q.105** How many female players are there ?
 (A) Two (B) Three
 (C) Five (D) One
- Q.106** How is D related to A ?
 (A) Uncle (B) Sister
 (C) Niece (D) Cousin

Directions :

Read the information carefully and answer the questions based on it.

$A + B$ means A is the father of B; $A - B$ means A is the wife of B; $A \times B$ means A is the brother of B; $A \div B$ means A is the daughter of B.

- Q.107** If $P \div R + S + Q$, which of the following is true ?
 (A) P is the daughter of Q
 (B) Q is the aunt of P
 (C) P is the aunt of Q
 (D) P is the mother of Q
- Q.108** If $P - R + Q$, which of the following statements is true ?
 (A) P is the mother of Q
 (B) Q is the daughter of P
 (C) P is the aunt of Q
 (D) P is the sister of Q
- Q.109** If $P \times R \div Q$, which of the following is true ?
 (A) P is the uncle of Q
 (B) P is the father of Q
 (C) P is the brother of Q
 (D) P is the son of Q
- Q.110** If $P \times R - Q$, which of the following is true ?
 (A) P is the brother-in-law of Q
 (B) P is the brother of Q
 (C) P is the uncle of Q
 (D) P is the father of Q
- Q.111** If $P + R \div Q$, which of the following is true ?
 (A) P is the brother of Q
 (B) P is the son of Q
 (C) P is the husband of Q
 (D) P is the father of Q
- Q.112** If $P \div R + Q$, which of the following is true ?
 (A) P is the father of Q
 (B) P is the brother of Q
 (C) P is the mother of Q
 (D) P is the sister of Q

Calendar

- Q.113** The year next to 1996 will have the same calendar as that of the year 1996 :
 (A) 2001 (B) 1996
 (C) 1997 (D) 1999

- Q.114** The year next to 1990 will have the same calendar as that of the year 1990 :
 (A) 1995 (B) 1997 (C) 1996 (D) 1992
- Q.115** What was the day of the week on 2nd July 1984?
 (A) Wednesday (B) Tuesday
 (C) Monday (D) Thursday
- Q.116** Today is Friday. The day after 63 days will be:
 (A) Friday (B) Thursday
 (C) Saturday (D) Monday
- Q.117** Today is Thursday. The day after 59 days will be :
 (A) Sunday (B) Monday
 (C) Tuesday (D) Wednesday
- Q.118** Today is Wednesday, What will be the day after 94 days ?
 (A) Monday (B) Tuesday
 (C) Wednesday (D) Sunday
- Q.119** On what dates of December, 1984 did Sunday fall ?
 (A) 6th, 13th, 20th & 27th
 (B) 7th, 14th, 21th & 28th
 (C) 2nd, 9th, 16th & 23rd & 30th
 (D) 1st, 8th, 15th & 22nd
- Q.120** What is the day on 1st January 1901 ?
 (A) Monday (B) Wednesday
 (C) Sunday (D) Tuesday
- Q.121** What is the day on 31st October 1984 ?
 (A) Friday (B) Sunday
 (C) Wednesday (D) Monday
- Q.122** What is the day on 14th March, 1993 ?
 (A) Friday (B) Thursday
 (C) Sunday (D) Saturday
- Q.123** On what dates of August 1980 did Monday fall?
 (A) 4th, 11th, 18th & 25th
 (B) 3rd, 10th, 17th & 24th
 (C) 6th, 13th, 20th & 27th
 (D) 9th, 16th, 23th & 30th

ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Ans.	B	D	A	D	A	A	B	D	B	A	B	C	A	D	B	D	D	A	B	D	A	A	C	D	A
Ques.	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Ans.	D	B	C	C	C	B	A	A	B	D	A	D	A	C	D	B	D	B	B	C	B	C	C	C	D
Ques.	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	C	C	B	A	B	C	C	A	C	D	A	D	B	B	A	B	D	B	B	D	B	D	B	C	B
Ques.	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Ans.	B	B	A	D	C	C	A	A	B	A	B	B	A	D	B	D	D	A	C	B	A	C	C	C	B
Ques.	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123		
Ans.	C	C	A	B	B	D	C	A	D	A	C	D	A	C	C	A	A	C	C	D	C	C	A		



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