

## Quantitative Aptitude

**Directions (1 – 3):** Read the following information carefully and answer the questions based on it.

A train is going from station S1 to S2 via Station S3 and S4 on Day 1 and Day 2. The average speed of train on day 1 and day 2 is 150 km/h and 187.5 km/h and the time taken by train to go from S1 to S3 on day 1 is 3 hours less than day 2. Time taken by train to go from S3 to S4 on both the days is same. Time taken by train to go from S4 to S2 on day 2 is 9 hours less than that on day 1. The distance between S4 and S2 is 66.66% more than the distance between S1 and S3. The distance between S3 and S4 is 10% less than the distance between S4 and S2.

**1) Find the time taken by train to cover the distance from station S1 to station S2 on day 2?**

- a) 30 hours
- b) 16 hours
- c) 24 hours
- d) 32 hours
- e) Can't be determined

**2) Find the difference between the distance from station S1 to S3 and distance from station S4 to S2?**

- a) 720 km
- b) 480 km
- c) 630 km
- d) 640 km
- e) None of these

**3) On day 1, the speed of train between stations S4 and S2 and between stations S3 and S4 is in the ratio of 2:3 and the time taken to cover the distance from S3 to S4 is 6 hours less than the time taken to travel from station S4 to S2. Find the speed of the train while travelling from S4 to S2?**

- a) 80 km/h
- b) 120 km/h
- c) 40 km/h
- d) 60 km/h
- e) None of these

**Directions (4 – 9):** Read the following information carefully and answer the questions based on it.

The following table gives partial information about the number of students pursuing Masters from the Indian Institute of Management, Ahmedabad (IIM A). Students are categorized as engineers and non – engineers based on their graduation background.

Total students = total male students + total female students

City	% of engineers	Number/% of male engineers out of total engineers	Number/% of male non-engineers out of non-engineers	Total number of
Delhi	68%	2448	25%	1968
Mumbai	88%	75%	41.66%	-
Bangalore	92%	3588	62.5%	-
Assam	80%	68.75%	37.5%	-
Calcutta	78%	1896	40%	2208

**4) In Mumbai, the number of male students is how much % more/less than the number of female students?**

- a) 143.82%
- b) 142.82%
- c) 145.82%
- d) 144.82%
- e) None of these

**5) Find the total number of students belongs to Calcutta?**

- a) 4800
- b) 5000
- c) 4500
- d) 5200
- e) None of these

**6) Find the difference between the total male students belongs to Delhi and the number of male engineers belongs to Bangalore?**

- a) 776

- b) 786
- c) 754
- d) 766
- e) None of these

**7) For Bangalore, engineering female students pursuing masters in two branches Marketing and Finance. The difference between the number of females pursuing masters in Marketing and Finance is 132. The number of females pursuing masters in Finance is 200% more than the number of male non engineers. Find the total number of students who belongs to Bangalore?**

- a) 4800
- b) 6000
- c) 5400
- d) 6400
- e) None of these

**8) For Assam, if the difference between total male students and female students is 3300, find the number of female non – engineers in Assam?**

- a) 1950
- b) 1650
- c) 3300
- d) 1750
- e) None of these

**9) Find the difference between the number of male engineers and the number of female engineers in Delhi?**

- a) 1622
- b) 1672

- c) 1632
- d) 1682
- e) None of these

**Directions (10 – 12): Read the following information carefully and answer the questions based on it.**

In a college, there are two streams, A and B. The number of girls in stream B is 90 more than thrice the number of girls in stream A and the number of boys in stream B is 50% of the sum of the total number of students in stream A.

**10) If the number of girl students in stream B is 360 and the total number of students in stream B is 90 less than twice the number of students in stream A, then find the number of boys in stream B?**

- a) 150
- b) 180
- c) 120
- d) 200
- e) None of these

**11) Find the difference between the sum of 200% of the number of boys in stream A and girls in stream A and the number of girls in stream B?**

- a) 120
- b) 240
- c) 180
- d) 150
- e) Can't be determined

**12) Find the value of  $(X - Y)$ , where**

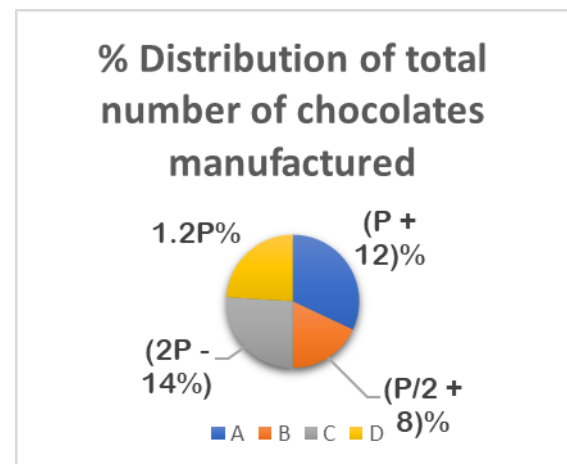
**$X = 300\%$  of the number of boys in stream A + number of boys in stream B**

**$Y =$  number of girls in stream A + number of girls in stream B**

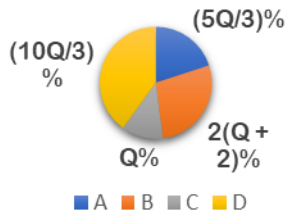
- a) 330
- b) 450
- c) 320
- d) 230
- e) Can't be determined

**Directions (13 – 15): Read the following information carefully and answer the questions based on it.**

The following given pie charts give information about the percentage distribution of the total number of chocolates manufactured by the four different companies and % distribution of white chocolates manufactured by the four companies. Total number of chocolates manufactured = Brown chocolates + White chocolates.



**% Distribution of number of White Chocolates Manufactured**



**Note:** Number of brown chocolates in companies B and D is 3040 and 3520 respectively.

**13) Find the ratio of the total number of white Chocolates and the total number of Brown chocolates manufactured by all companies together respectively?**

- a) 4:7
- b) 6:7
- c) 5:4
- d) 9:7
- e) None of these

**14) Find the central angle that corresponds to brown chocolates related to company C, if data of all companies related to brown chocolates arranged in a pie chart?**

- a)  $137.85^\circ$
- b)  $129.60^\circ$
- c)  $129.75^\circ$
- d)  $136.85^\circ$
- e) None of these

**15) Find the number of brown chocolates manufactured by company A is approx. how much % more or less than the number of brown chocolates manufactured by company C?**

- a) 12.9%
- b) 13.7%
- c) 12.7%
- d) 12.5%
- e) 13.2%

**Directions (16 – 21): Read the following information carefully and answer the questions based on it.**

The line graph given below shows the % of managers in a company out of the total number of employees in that company and the table is given below shows the number of female managers in a company.



Company	Female Managers
A	52
B	104
C	36
D	80
E	36
F	90

**16) If the number of male managers in company C is 144 and the number of females in company C is 360, then find the number of male employees other than managers is how much %**

**more than the number of male managers in that company?**

- a) 225%
- b) 180%
- c) 275%
- d) 75%
- e) None of these

**17) In company A, if the difference between the number of managers and the number of non – managers is 196, then find the number of male managers in that company?**

- a) 36
- b) 56
- c) 46
- d) 42
- e) None of these

**18) Ratio of male managers and female managers in company F is 5:3 respectively, then find the number of non – manager employees in company F?**

- a) 630
- b) 560
- c) 420
- d) 660
- e) None of these

**19) If the number of employees other than managers in company D is 574, then find the number of male managers in company D?**

- a) 46
- b) 44
- c) 36

- d) 56
- e) None of these

**20) Number of male managers in company E is 'K' more than the number of female managers in company E. Find the total employees in E, where  $K = 75%$  of the number of female managers in the company?**

- a) 875
- b) 625
- c) 725
- d) 825
- e) None of these

**21) In company B, the number of females is 60% of total employees and the number of female employees other than the manager is 40% of the number of employees other than the manager. Find the number of employees in company B other than the manager?**

- a) 340
- b) 320
- c) 360
- d) 400
- e) None of these

**22) A Number series is given to you as below:**

**701, 349, 173, 85, 41, 19, 8, 2.5**

**X is the nth term of the given series and Y is the  $(n + 1)$ th term of the same series.**

**Find which of the following statement is/are true in the context of the given number series.**

I.  $X = 2Y + 3$

II. Difference between the first term and second term is twice the difference between the second and third term and so on.

III.  $Y = 3X + 2$

- a) Only I
- b) II and III only
- c) I and III only
- d) I and II only
- e) I, II and III

**23) A number series given below as I. A second number series as II having first term same as the wrong term of the series I. Find 3<sup>rd</sup> term of series II?**

**Series I. 3, 7, 22, 95, 479, 2879**

- a) 541
- b) 571
- c) 561
- d) 551
- e) None of these

**Directions (24 – 25): In the following question two number series I and II are given to you. In each number series, there is a wrong term. You are expected to find the logic of the series and identify the wrong term then answer the question accordingly.**

**Series I. 18, 20, 25, 35, 52, 78, 114**

**Series II. 80, 320, 1120, 3360, 8400, 16400, 25200**

**24) In series II, if N is the wrong term, then find which of the following statement(s) is/are true?**

- I.  $(N/400)$  is a prime number
- II.  $(N + 500)$  is a perfect square

III. When N is divided by 27, the remainder is a prime number

- a) I only
- b) I and II only
- c) III only
- d) I, II and III
- e) None of these

**25) If N is the wrong Number in series I, then find what minimum number must be added to N to make it perfect square?**

- a) 14
- b) 8
- c) 9
- d) 11
- e) None of these

**26) There are some green balls, some blue balls and 7 red balls in the bag. The probability of picking one green ball is  $\frac{1}{7}$  more than that of picking one red ball. The probability of picking one blue ball is  $\frac{9}{35}$  more than that of the probability of picking one red ball. Find the total number of blue balls in the bag?**

- a) 16
- b) 14
- c) 12
- d) 18
- e) None of these

**27) Samantha born 4 years after the marriage of their parents, Samantha's mother is 4 years younger than Samantha's father. At present Samantha is 20 years younger than his mother.**

After 4 years ratio of ages of her parents is in 7:8. How many years before his parents got married?

- a) 12 years
- b) 8 years
- c) 16 years
- d) 10 years
- e) None of these

**Directions (28 – 29):** In each of the following questions three statements I, II and III are given to you. You have to decide which statement(s) is/are sufficient to answer the question.

**28) Scheme 'A' offers an R% rate of interest on compound interest. Find the value of R?**

**Statement I:** If the interest received on  $2P/5$  sum of money invested for 11 years at  $0.25R\%$  interest on SI is half of amount P invested in scheme A for 2 years.

**Statement II:** If X is invested in scheme A for 2 years and amounts to Rs. 3600. If Rs.  $16X/25$  is invested at  $(R - 10)\%$  on CI for 2 years, it amounts to Rs. 1936.

**Statement III:** Difference between interests on Rs. Q invested in Scheme A for two years and three years is Rs. 1152.

- a) Only I
- b) Only I or II
- c) Only I or III
- d) Any two statements are required
- e) None of the statement is sufficient to answer

**29) An article is marked up at a certain rate above the cost price. Find the marked price of the article (i.e) Rs. K.**

**Statement I.** K is marked at 80% above cost price.

**Statement II:** The cost price of the article is Rs. P. If the shopkeeper gives a discount of 4%, then he makes a profit of 8%. If he sells the article at the marked price, then profit is Rs. 28

**Statement III:** The cost price of the Pen is Rs. Q. Shopkeeper makes a profit of Rs. 56, if he gives a discount of 22.22%

- a) II or (I + III)
- b) Only II
- c) Combination of any two statements
- d) Only III
- e) Any of the statements alone is not sufficient to answer the question.

**Directions (30 – 31):** There are 6 quantities given to you, three in each box, Box 1 and Box 2. Find the perfect match between the quantities of boxes according to the situation given to you.

**Box 1:**

I. The volume of the toy is  $1232 \text{ cm}^3$ , cone consists of cone X, surmounted by a hemisphere.

II. Volume of cylinder Y is  $1848 \text{ cm}^3$

III. A circle is inscribed in a square S.

**Box 2:**

IV. Radius = 14 cm

V. Radius = 7 cm

VI. Circumference of circle = 44 cm

**30) If the difference between the height of Y and the side of S is greater than 20 cm, find which of the following given match(s) is/are true.**

Match P: II-VI

Match Q: II - V

Match R: II-IV

**Answer: C**

- a) Match P and R only
- b) Match P only
- c) Match R only
- c) Match Q only
- e) Match Q and R only

**31) If the height of X is greater than Radius of Y, then find which of the following match is true?**

- a) I - V only, II-IV, III-IV only
- b) I - V or I - VI, II - IV or II - V, III - IV or III - V or III - VI
- c) I - V or I - VI, II - IV, III - IV or III - V or III - VI
- d) I - VI, II - IV or II - V, III - IV or III - V or III - VI
- e) None of these

**Directions (32 – 34): A person is going market from his home with a speed of P km/h and in Q hours. After reaching the market, he purchases a cylindrical jar of a certain height having a capacity equal to 83259 cubic cm. There is a conical vessel whose capacity is  $1/27^{\text{th}}$  of the cylindrical jar and the height of the cone is 14 cm. The height of the conical vessel is 300% more than the cylinder.**

**32) Find the ratio of the radius of the cylindrical jar to the radius of the conical vessel.**

- a) 6:1
- b) 3:2
- c) 4:3
- d) 5:2
- e) None of these

**33) If the distance between home and market is numerically equal to seven more than  $1/3^{\text{rd}}$  of the square root of  $1/11^{\text{th}}$  of the capacity of cylindrical jar and speed of person is 300% more than the time taken by a person to reach the market, then find the value of P.**

- a) 40 km/h
- b) 18 km/h
- c) 36 km/h
- d) 12 km/h
- e) None of these

**34) If the distance between home and market is numerically equal to the seven more than  $1/3^{\text{rd}}$  of the square root of  $1/11^{\text{th}}$  of the capacity of cylindrical jar and speed of person is 300% more than the time taken by a person to reach the market, then find the value of Q.**

- a) 6 hours
- b) 3 hours
- c) 9 hours
- d) 12 hours
- e) None of these

**35) The product of two positive integers is 616. If the ratio of difference of their cubes to the cube of their difference is 157:3, then find 50% of the sum of two numbers.**



- a) 50
- b) 75
- c) 12.5

- d) 25
- e) None of these

### Answer With Explanation

#### Directions (1 – 3):

Average Speed of train on day 1 = 150 km/h

Average Speed of train on day 2 = 187.5 km/h

Let the time taken by train to go from S1 to S3 on day 1 = a hours

So, time taken by train to go from S1 to S3 on day 2 = (a + 3) hours

Let the time taken by train to go from S3 to S4 on day 1 = day 2 = b hours

Let the time taken by train to go from S4 to S2 on day 1 = c hours

So, time taken by train from S4 to S2 on day 2 = (c – 9) hours

Distance between S4 and S2 is 66.66% more than distance between S1 and S3. Distance between S3 and S4 is 10% less than distance between S4 and S2

So ratio of distance from (S1 to S3), (S3 to S4) and (S4 to S2) = 6:9:10

We know, average speed = total distance/total time

Distance travelled in both the days is same, so

$$150 \times (a + b + c) = 187.5 \times (a + 3 + b + c - 9)$$

$$4 \times (a + b + c) = 5 \times (a + b + c - 6)$$

$$4 \times (a + b + c) = 5 \times (a + b + c) - 30$$

$$\text{So, } (a + b + c) = 30$$

So time is taken by train to travel the distance from S1 to S2 on day 1 = 30 hours

**1. Answer: C**

According to the question,

Time taken by train to go from S1 to S2 on day 2

$$= (a + 3 + b +$$

$$c - 9)$$

$$= (a + b + c) - 6$$

$$= 30 - 6 = 24 \text{ hours}$$

Hence answer is option C

#### 2. Answer: A

We already know,

The ratio of the distance from (S1 to S3), (S3 to S4) and (S4 to S2) = 6:9:10

Time is taken by train to travel the distance from S1 to S2 on day 1 = 30 hours

Average speed on day 1 = 150 km/h

So, total distance = 150 x 30 = 4500 km

$$\text{Distance between S1 and S3} = \left[ \frac{6}{(6 + 9 + 10)} \right] \times 4500 = 1080$$

$$\text{Distance between S4 and S2} = \left[ \frac{10}{(6 + 9 + 10)} \right] \times 4500 = 1800$$

$$\text{Required difference} = 1800 - 1080 = 720 \text{ km}$$

Hence answer is option A

#### 3. Answer: B

According to the question,

The speed of the train between stations S4 and S2 and between stations S3 and S4 is in the ratio of 2:3.

The ratio of the distance from (S1 to S3), (S3 to S4) and (S4 to S2) = 6:9:10

So the ratio of time taken from (S4 to S2) and (S3 to S4) =  $10/2 : 9/3 = 5:3$

Difference of time = 6 hours

So time is taken by train to go from S4 to S2 = 15 hours

Total distance travelled by train =  $150 \times 30 = 4500$  km

Distance between S4 and S2 =  $10/25 \times 4500 = 1800$  km

Required speed =  $1800/15 = 120$  km/h

Hence answer is option B

#### 4. Answer: D

**For Mumbai,**

Let the total number of students studying in IIM

A from Mumbai =  $100a$

Number of engineers = 88% of  $100a = 88a$

Number of non-engineers =  $100a - 88a = 12a$

Number of male engineers = 75% of  $88a = 3/4 \times 88a = 66a$

Number of female engineers =  $88a - 66a = 22a$

Number of male non engineers = 41.667% of  $12a = 5/12 \times 12a = 5a$

Number of female non engineers =  $12a - 5a = 7a$

Total number of male students =  $(66a + 5a) = 71a$

Total number of female students =  $(22a + 7a) = 29a$

Required % of change =  $(71a - 29a)/29a \times 100 = 144.82\%$

Hence answer is option D

#### 5. Answer: C

According to the question,

Let the total Population =  $100a$

Number of engineers = 78% of  $100a = 78a$

Number of non-engineers =  $100a - 78a = 22a$

Number of male engineers = 1896

Number of female engineers =  $78a - 1896$

Number of male non engineers = 40% of  $22a = 8.8a$

Number of female non engineers =  $22a - 8.8a = 13.2a$

Total number of female = 2208

So,  $78a - 1896 + 13.2a = 2208$

$91.2a = 2208 + 1896$

So,  $a = 4104/91.2 = 45$

So total number of students belongs to Calcutta =  $100a = 4500$

Hence answer is option C

#### 6. Answer: E

**For Delhi,**

Let total population of Delhi =  $100a$

Number of engineers = 68% of  $100a = 68a$

Number of non-engineers =  $100a - 68a = 32a$

Number of male engineers = 2448

Number of female engineers =  $68a - 2448$

Number of non-engineers male = 25% of  $32a = 8a$

Number of non-engineers female =  $32a - 8a = 24a$

Total number of females = 1968

So,  $68a - 2448 + 24a = 1968$

$92a = 4416$

So,  $a = 48$

So, total number of male students =  $2448 + 8a = 2832$

Number of male engineers belongs to Bangalore = 3588

Required difference =  $3588 - 2832 = 756$

Hence answer is option E

### 7. Answer: B

**For Bangalore,**

Let total population =  $100a$

Number of engineers =  $92a$

Number of non-engineers =  $100a - 92a = 8a$

Number of male engineers = 3558

Number of female engineers =  $92a - 3588$

Number of male non - engineers = 62.5% of  $8a = 5a$

Number of female non engineers =  $8a - 5a = 3a$

Number of females pursuing masters in Finance = 300% of  $5a = 15a$

Number of females pursuing masters in

Marketing =  $(92a - 3588) - 15a = 77a - 3588$

Now,

$(77a - 3588) - 15a = 132$

$62a = 3588 + 132 = 3720$

So,  $a = 3720/62 = 60$

So, total students belongs to Bangalore =  $100a = 100 \times 60 = 6000$

Hence answer is option B

### 8. Answer: B

**For Assam,**

Let the total population =  $320a$

Number of engineers = 80% of  $320 = 256a$

Number of non - engineers =  $320a - 256a = 64a$

Number of male engineers = 68.75% of  $256a = 176a$

Number of female engineers =  $256a - 176a = 80a$

Number of male non engineers = 37.5% of  $64a = 24a$

Number of female non engineers =  $64a - 24a = 40a$

Now,

$(176a + 24a) - (80a + 40a) = 3300$

$80a = 3300$

So,  $a = 3300/80 = 330/8$

So number of female non-engineers =  $40a = 40 \times 330/8 = 1650$

Hence answer is option B

### 9. Answer: C

**For Delhi,**

Let total population of Delhi =  $100a$

Number of engineers = 68% of  $100a = 68a$

Number of non-engineers =  $100a - 68a = 32a$

Number of male engineers = 2448

Number of female engineers =  $68a - 2448$

Number of non - engineers male = 25% of  $32a = 8a$

Number of non-engineers female =  $32a - 8a = 24a$

Total number of females = 1968

So,  $68a - 2448 + 24a = 1968$

$92a = 4416$

So,  $a = 48$

So, number of female engineers =  $68a - 2448 = 816$

Required difference =  $2448 - 816 = 1632$

Hence answer is option C

**10. Answer: A**

According to the question,

Number of girls in stream B = 360

The number of girls in stream B is 90 more than thrice the number of girls in stream A

So,  $3 \times \text{number of girls in stream A} + 90 = 360$

So, number of girls in stream A =  $270/3 = 90$

Total number of students in stream B is 90 less than twice the number of students in stream A.

$2 \times (\text{boys in A} + \text{Girls in A}) - 90 = (\text{boys in B} + \text{girls in B})$

$2 \times (\text{boys in A} + 90) - 90 = (\text{boys in B} + 360)$

$2 \times \text{boys in A} - \text{boys in B} = 270 \dots\dots\dots (1)$

Number of boys in stream B is 50% of the sum of the total number of students in stream A.

So, boys in B =  $1/2 \times (\text{boys in A} + 90)$

$\text{Boys in A} - 2 \times \text{boys in B} = -90 \dots\dots\dots (2)$

On solving both equations,

$3 \times \text{boys in B} = 270 + 180$

Boys in B =  $450/3 = 150$

Hence answer is option A

**11. Answer: D**

Let the number of boys and girls in stream A is 'a' and 'b' respectively.

So number of boys in stream B =  $(a + b)/2$

Number of girls in stream B =  $(3b + 90)$

Total number of students in stream B is 90 less than twice the number of students in stream A.

$2 \times (a + b) - 90 = (3b + 90) + (a + b)/2$

$4a + 4b - 180 = 6b + 180 + a + b$

$3a - 3b = 360$

$(a - b) = 120$

We need to calculate =  $2 \times a + b - (3b + 90) = 2(a - b) - 90$

So required value =  $2 \times 120 - 90 = 150$

Hence answer is option D

**12. Answer: A**

Let the number of boys and girls in stream A is 'a' and 'b' respectively.

So number of boys in stream B =  $(a + b)/2$

Number of girls in stream B =  $(3b + 90)$

Total number of students in stream B is 90 less than twice the number of students in stream A.

$2 \times (a + b) - 90 = (3b + 90) + (a + b)/2$

$4a + 4b - 180 = 6b + 180 + a + b$

$3a - 3b = 360$

$(a - b) = 120$

We need to calculate =  $[3a + (a + b)/2] - [b + 3b + 90]$

$= (7a - 7b - 180)/2$

$= 7/2 \times (a - b) - 90$

$= 7/2 \times 120 - 90$

$= 330$

Hence answer is option A

**Directions (13 – 15):**

According to the given information,

$(P + 12 + P/2 + 8 + 2P - 14 + 1.2P)\% = 100\%$

$4.7P = 94$

$P = 20$

Similarly,  $(5Q/3 + 2Q + 4 + Q + 10Q/3)\% = 100\%$

$8Q = 96$

$Q = 12$

Let total number of Chocolates and total number of white chocolates manufactured by all companies together is  $100a$  and  $100b$  respectively

Total number of brown chocolates in company B = 3040

$(P/2 + 8)\%$  of  $100a - (2Q + 4)\%$  of  $100b = 3040$

$18a - 28b = 3040$ ..... (1)

Total number of brown chocolates in company D = 3520

$(1.2P)\%$  -  $(10Q/3)\%$  = 3520

$24a - 40b = 3520$ ..... (2)

On solving both equations we get

Value of  $a = 480$  and  $b = 200$

Total number of chocolates manufactured =  $100a = 48000$

Total number of white chocolates manufactured  $100b = 20000$

Now we can find the data for all companies, calculated in the table below:

Company	Total Chocolates	White Chocolates	Brown Chocolates
A	15360	4000	11360
B	8640	5600	3040
C	12480	2400	10080
D	11520	8000	3520
Total	48000	20000	28000

**13. Answer: E**

According to the question,

Total number of white chocolates = 20000

Total number of brown chocolates = 28000

Required ratio = 20000: 28000 = 5:7

Hence answer is option E

**14. Answer: B**

Total number of brown chocolates = 28000

Brown chocolates manufactured by company C =  $(10080/28000) \times 360^\circ = 129.60^\circ$

Hence answer is option B

**15. Answer: C**

Number of brown chocolates manufactured by company A = 11360

Number of brown chocolates manufactured by company C = 10080

Required % change =  $[(11360 - 10080)/10080] \times 100 = 12.7\%$

Hence answer is option C

**16. Answer: E**

**For company C,**

Number of male managers = 144

Number of female managers = 36

Total managers in company = 20% of total employees in a company

So, total employees in the company =  $(144 + 36)/20 \times 100 = 900$

Number of female employees = 360

Number of male employees =  $900 - 360 = 540$

Number of male employees other than manager =  $540 - 144 = 396$

Required % change =  $(396 - 144)/144 \times 100 = 175\%$

Hence answer is option E

**17. Answer: C**

**For company A,**

Number of managers in company = 25% of total employees in a company

Number of non-managers in company = 75% of total employees in a company

Now,

$(75\% - 25\%) \text{ of total employees in company} = 196$

So, total employees in the company =  $196/50 \times 100 = 392$

Number of managers in company = 25% of 392 = 98

So, number of male managers in company =  $98 - 52 = 46$

Hence answer is option C

**18. Answer: B**

Number of female managers in the company = 90

So, number of male managers in company =  $5/3 \times 90 = 150$

Total managers in company =  $(90 + 150) = 240$

Number of managers in company = 30% of total employees

Number of non - managers = 70% of total employees

So, number of non - managers in company =  $240/30 \times 70 = 560$

Hence answer is option B

**19. Answer: A**

Number of managers in company D = 18% of total employees

Number of non - managers = 82% of total employees

So, total employees in the company =  $574/82 \times 100 = 700$

Number of managers = 18% of 700 = 126

Number of male managers =  $126 - 80 = 46$

Hence answer is option A

**20. Answer: D**

Number of female managers in company E = 36

So, number of male managers in company E =  $36 + 75\% \text{ of } 36 = 63$

Total managers in company =  $63 + 36 = 99$

So, total employees in company E =  $99/12 \times 100 = 825$

Hence answer is option D

**21. Answer: A**

Let the total number of employees in the company B =  $100a$

Number of female = 60% of  $100a = 60a$

Number of male =  $40a$

Number of managers = 15% of  $100a = 15a$

Number of non - managers =  $100a - 15a = 85a$

Number of female other than manager = 40% of  $85a = 34a$

So number of female managers =  $60a - 34a = 26a$

So,  $26a = 104$

So value of  $a = 104/26 = 4$

So number of employees in company =  $100a = 400$

Number of employees other than manager = 85% of  $400 = 340$

Hence answer is option A

**22. Answer: D**

**Statement I:**

The given series is

701, 349, 173, 85, 41, 19, 8, 2.5

If  $X = 701$  and  $Y = 349$

Then  $701 = 2 \times 349 + 3$  (follow)

If  $X = 349$  and  $Y = 173$

Then,  $349 = 2 \times 173 + 3 = 349$

Check for other terms also, it will follow the same pattern.

This statement is true

**Statement II:**

Difference between the first term and second term is twice the difference between the second and third term and so on.

So, the difference between the first term and the second term = 352

Difference between second term and third term =  $349 - 173 = 176$

So,  $2 \times 176 = 352$  (follow)

If the first term is 349,

Difference between first term and second term =  $349 - 173 = 176$

Difference between second term and third term =  $173 - 85 = 88$

$2 \times 88 = 176$  (follow)

If first term is 173

Difference between first term and second term =  $173 - 85 = 88$

Difference between second term and third term =  $85 - 41 = 44$

$2 \times 44 = 88$  (follow)

If first term is 85,

Difference between first term and second term =  $85 - 41 = 44$

Difference between second term and third term =  $41 - 19 = 22$

$2 \times 22 = 44$  (follow)

If first term is 41

Difference between first term and second term =  $41 - 19 = 22$

Difference between second term and third term =  $19 - 8 = 11$

$2 \times 11 = 22$  (follow)

If first term is 19,

Difference between first term and second term =  $19 - 8 = 11$

Difference between second term and third term =  $8 - 2.5 = 5.5$

$2 \times 5.5 = 11$  (follow)

This statement is true.

**Statement III:**

$X = 701, Y = 349$

$Y = 3X + 2$ , will not follow, because  $Y$  is always less than  $X$ .

This statement is not true

Only I and II are true.

Hence answer is option D

**23. Answer: D**

**Series I:**

$3 \times 2 + 1 = 7$

$7 \times 3 + 2 = 23$

$23 \times 4 + 3 = 95$

$95 \times 5 + 4 = 479$

$479 \times 6 + 5 = 2879$

Wrong term is 22

**Series II:**

$$22 \times 2 + 1 = 45$$

$$45 \times 3 + 2 = 137$$

$$137 \times 4 + 3 = 551$$

Hence answer is option D

**24. Answer: D**

**Series II:**

$$80 \times 4 = 320$$

$$320 \times 3.5 = 1120$$

$$1120 \times 3 = 3360$$

$$3360 \times 2.5 = 8400$$

$$8400 \times 2 = \mathbf{16800}$$

$$16800 \times 1.5 = 25200$$

So the value of N = 16400

**Statement I.** value of  $(N/400) = 16400/400 = 41$

(Prime number)

This statement is true

**Statement II:**  $(N + 500) = (16400 + 500) = 16900 = (130)^2$

This statement is true

**Statement III:**  $(N/27) = 16400/27 = 27 \times 607 + 11$

Remainder is 11, so this statement is true.

All statements are true.

Hence answer is option D

**25. Answer: E**

**Series I:**

18	20	25	35	52	78	115
2	5	10	17	26	37	
3	5	7	9	11		

Value of N = 114

$$114 + 7 = 121$$

Hence answer is option E

**26. Answer: A**

Let the number of green balls and blue balls in the bag is 'a' and 'b' respectively.

According to the question,

$$a/\text{total balls} - 7/\text{total balls} = 1/7$$

$$7a - 49 = \text{total balls} \dots\dots\dots (1)$$

Also,

$$b/\text{total balls} - 7/\text{total balls} = 9/35$$

$$35b - 245 = 9 \times \text{total balls} \dots\dots\dots (2)$$

On comparing both equations

$$63a - 441 = 35b - 245$$

$$63a - 35b = 196$$

$$9a - 5b = 28 \dots\dots\dots (3)$$

Also, total balls =  $(a + b + 7)$

So,  $7a - 49 = a + b + 7$

$$6a - b = 56 \dots\dots\dots (4)$$

On solving 3 and 4, we get

$$7b = 112$$

So,  $b = 16$

Number of blue balls in the bag = 16

Hence answer is option A

**27. Answer: B**

According to the question,

At present Samantha is 20 years younger than his mother. That means when Samantha was just born, the age of her mother was 20 years and her father was 24 years.

The age of parents at the time of marriage was 20 years and 16 years respectively.



The ratio of ages of parents after 4 years is in the ratio of 7:8. That means the ages of their parents after 4 years will be 28 years and 32 years.

So the present age of her parents is 24 years and 28 years respectively.

Present age of Samantha = 24 - 20 = 4 years

So her parents married before 8 years

Hence answer is option B

**28. Answer: B**

**Statement I:**

According to the given statement,

Simple interest earned =  $2P/5 \times R/400 \times 11 = 0.011PR$

Compound interest earned on P =  $P \times [(1 + R/100)^2 - 1]$

Now,

$P \times [(1 + R/100)^2 - 1] = 0.011PR \times 2$

$2R + R^2/100 = 2.2R$

$R^2/100 = 0.2R$

So  $R = 20\%$

This statement is sufficient to answer the question.

**Statement II:**

X is invested in scheme A for 2 years and amounts to Rs. 3600.

Rs.  $16X/25$  is invested at  $(R - 10)\%$  on CI for 2 years, it amounts to Rs. 1936

So,  $3600 = X [(100 + R)/100]^2 \dots\dots\dots (1)$

Also,  $1936 = 16X/25 [(100 + R - 10)/100]^2 \dots\dots\dots (2)$

On dividing both equations

$3600/1936 = 25/16 \times (100 + R)^2 / (90 + R)^2$

$60/44 = 5/4 \times (100 + R) / (90 + R)$

$1100 + 11R = 1080 + 12R$

$R = 20\%$

This statement is alone sufficient to answer the question.

**Statement III:**

We don't know about the value of Q. So we can't calculate R.

This statement is not sufficient to answer the question

Hence answer is option B

**29. Answer: A**

Statement I alone is not sufficient to answer the question.

**Statement II:**

108% of P = 96% of K

$P/K = 8/9$

If he sells the article at the marked price then profit is Rs. 28

Then,  $(9 - 8)$  units = 28

Then value of K =  $28 \times 9 = \text{Rs. } 252$

This statement is sufficient to answer the question.

**On combining (I + III),**

Mark up % is 80%

So  $Q/K = 5/9$

Discount is 22.222%

So ratio of  $SP/K = 7/9$

So, CP: SP: MRP = 5:7:9

Profit is Rs. 70

So 2 units = Rs. 56

1 unit = 28

So required value of K =  $28 \times 9 = \text{Rs. } 252$

This combination of the statement is sufficient to answer the questions.

Statement II alone or statement (I + III) is sufficient to answer the question.

Hence answer is option A

**30. Answer: C**

Volume of cylinder =  $1848 \text{ cm}^3$

$22/7 \times r^2 \times \text{height} = 1848$

In quantity VI, circumference = 44 cm

So radius = 7 cm

If radius = 14 cm

Then side of square =  $2 \times 14 = 28 \text{ cm}$

Then height of cylinder =  $(7/22 \times 1848) / (14 \times 14) = 3 \text{ cm}$

So the difference between the height and side of the square is more than 20. This will satisfy the condition

If radius = 7 cm

Side of square = 14 cm

Then height of cylinder =  $(7/22 \times 1848) / (7 \times 7) = 12 \text{ cm}$

So the difference between the height and side of the square is less than 20. This will not satisfy the condition.

So the correct match is II-IV.

Hence answer is option C

**31. Answer: C**

The volume of toy =  $1232 \text{ cm}^3$

If radius = 7 cm

$1/3 \times 22/7 \times 7 \times 7 \times \text{height of cone} + 2/3 \times 22/7 \times 7^3 = 1232$

$22/7 \times 7^2 \times (1/3) \times (\text{height of cone} + 14) = 1232$

Height of cone = 10 cm

If radius = 14 cm, then the height of the cone becomes negative

Hence answer is option C

**32. Answer: A**

According to the question,

Volume of cylinder =  $22/7 \times (\text{radius of cylinder})^2 \times \text{height of cylinder}$

Volume of cone =  $1/3 \times 22/7 \times (\text{radius of cone})^2 \times \text{height of cone}$

Now,

$27 \times 1/3 \times 22/7 \times (\text{radius of cone})^2 \times 4 \times \text{height of cylinder} = 22/7 \times (\text{radius of cylinder})^2 \times \text{height of cylinder}$

Radius of cone/radius of cylinder =  $1/6$

Required ratio = 6:1

Hence answer is option A

**33. Answer: D**

Distance between home and market =  $7 + 1/3 \times (1/11 \times 83259)^{1/2} = 36$

Speed of person = 4 x time taken

So  $36 = \text{time} \times 4 \times \text{time taken}$

Time = 3 hours = Q

Numerical value of P =  $4 \times 3 = 12 \text{ km/h}$

Hence answer is option D

**34. Answer: B**

The required value of Q = 3 hours

Hence answer is option B

**35. Answer: D**

Let the two numbers be 'a' and 'b'

So,  $a \times b = 616$

Also,  $(a^3 - b^3) / (a - b)^3 = 157/3$

$= (a^2 + a \times b + b^2) / (a^2 + b^2 - 2ab)$

Put  $a^2 + b^2 = K$

So,  $(K + 616) / (K - 2 \times 616) = 157/3$

So, value of  $K = 1268$

Value of  $a^2 + b^2 = 1268$

Or  $a^2 + b^2 + 2ab = 1268 + 2ab$

$(a + b)^2 = 1268 + 2 \times 616 = 2500$

So, value of  $(a + b) = 50$

Required value = 50% of 50 = 25

Hence answer is option D

## Reasoning Ability

**Direction (1-5): Answer the questions based on the information given below.**

Six persons joined the ABC organization in 2017. All are joined on different dates of either the same or the different month. Each of them already has some working experience. One of them joins on 18<sup>th</sup> July.

Less than two persons joined before E, who has an experience in an even number. The number of persons joined before E is the same as after the one whose experience is 13 years. B, who does not have an experience in prime number, joined before the one whose experience is 16 years but after the one whose experience is 5 and 9 years. The one whose experience is 5 years joins before the one whose experience is 9 years, who joins on 24<sup>th</sup> May. D has an experience twice that of E's experience. The number of persons joining between the one whose experience is 5 years and B is the same as between the one whose experience is 9 years and D, who joins in the organization on 27<sup>th</sup> September. A joins after C but before F. The one who joins on 26<sup>th</sup> July joined before D but after B. The one whose experience is 10 years joined after the one who joined on 12<sup>th</sup> January, which is not the joining date of E. B does not join on 15<sup>th</sup> January.

**Based on their working experience a foreign company XYZ gives the project with certain conditions:**

1. The project is given to those people who have a minimum experience of 3 years after joining the ABC Organization (Calculate their experience on the following date: 31<sup>st</sup> August 2020).
2. The project is given to the person who joins the organization at first according to the month.
3. If two persons join in the same month then give priority to the one who joins the organization first according to date.

**1) Which among the following is the correct order of the people who get the project?**

- a) CEABF
- b) BFACE
- c) FCEBA
- d) FECBA
- e) None of these

**2) If the project is given according to only the date of joining of the people, then how many persons remain unchanged in their positions?**

- a) None
- b) 3
- c) 2
- d) 1

e) 4

**3) Who among the following person has a maximum work experience before joining this organization?**

- a) A
- b) B
- c) C
- d) E
- e) None of these

**4) How many persons joined after F?**

- a) 1
- b) 2
- c) 3
- d) 4
- e) None of these

**5) If the company appoints a CEO, who has a minimum experience of 10 years, then who will be the CEO?**

- a) B
- b) D
- c) E
- d) Either a or b
- e) Either B or C

**Direction (6-7): Each of the questions below consists of a question and two statements numbered I and II given below it.**

A#B means B is the father of A

A?B means A is the daughter of B

A&B means B is the son of A

A!B means A is the mother of B

A%B means A is the husband of B

**Along with the given two statements, three statements are given below. You have to decide whether the data provided in the three statements are sufficient to answer the question. The statements given below can be used along with the above two statements but cannot be combined together. The two statements above are combined.**

**6) Statement I: T#R&Q&U, S?E!P**

**Statement II: V!U, T%I?A, S!Q**

**How is P related to R?**

i: S?G%E, A!D#W

ii: S?G%E, G&P

iii: T#R%S,S?E!P

- a) Only ii
- b) Only i
- c) Either only i or only ii
- d) Either only i or only iii
- e) Only iii

**7) Statement I: M%R!D; V#D; V%H&U; M&I**

**Statement II: I%Y!W**

**What is K related to R?**

I: Y?S%A

II: Y!Z#I, D%K

III: K&V%H, K?P

- a) Only II
- b) Only I

- c) Either only I or only II
- d) Either only II or only III
- e) Only III

**Direction (8-12): Study the given information and answer the following questions.**

Eight persons sit around a square table such that four of them sit at the middle of each side while four of them sit at the corners and all of them are facing outside. A boundary is made around the table with 6 inches gap between the table and the boundary. Eight persons are sitting on the boundary such that four persons are sitting in the middle of the sides of the boundary while four persons are sitting at the corners of the boundary and all of them are face inside.

Two persons sit between B and the one, who faces Q. B faces inside. S sits to the immediate right of the one, who faces B. Three persons sit between V and the one, who sits to the immediate right of the one, who faces S. E faces D, who sits second to the left of V. E sits at the corner of the table and adjacent to K. T sits third to the left of the one, who faces K. Y sits on the boundary but not adjacent to T. The one, who faces L, sits second to the right of Q. W faces R, who sits second to the left of O. One person sits between F and E. F does not face V. G does not face T. C sits second to the left of G.

**8) Which of the following statement is/are not true with respect to the final arrangement?**

- I. W sits at the inner table.
- II. V faces C.
- III. K sits third to the right of G.

- (a) Both I and II
- (b) Both I and III
- (c) Only II
- (d) All I, II and III
- (e) None of these

**9) How many persons sit between Y and the one, who faces K, when counted from the left of Y?**

- (a) Two
- (b) Three
- (c) One
- (d) None
- (e) Four

**10) What is the position of O with respect to the one, who faces F?**

- (a) Immediate right
- (b) Second to the left
- (c) Immediate left
- (d) Third to the right
- (e) None of these

**11) Which of the following statement is true with respect to the final arrangement?**

- (a) Three persons were sitting between F and W
- (b) R sits immediate left of V

- (c) S faces T
- (d) B sits immediate right of Y
- (e) None of these

**12) If Q is related to O and K is related to R in a certain way, then how is S related to?**

- (a) F
- (b) D
- (c) R
- (d) Y
- (e) None of these

**Directions (13): Study the following information carefully and answer the below questions**

A%B (10) → A is 25m to the North of B

A#B (12) → A is 27m to the South of B

A@B (45) → A is 30m to the West of B

A&B (18) → A is 3m to the East of B

**Note:** A#@B means A is to the southwest of B.

R%@Q, Q&P (25), P%V (5), V@G (43), W#R (29), W@T (38), T#G

**13) Which of the following statement is true with respect to the final arrangement?**

- a) W%@V
- b) R%&T
- c) T#P
- d) Q#@G
- e) G%T

**Direction (14-18): Study the given information and answer the following questions.**

Twelve persons were born in two different dates i.e. 3 and 18 of six different months i.e. January, March, June, August, September and October in the same year.

The Persons whose name starts with a letter which comes before 'M' in alphabetical series were born in the first half of the year i.e. from January to June. The persons whose name starts with a letter which comes after 'M' in the alphabetical series were born in the second half of the year i.e. June to December.

The persons whose name has an even number of letters were born in the month having an odd number of days and the persons whose name has an odd number of letters were born in the month having an even number of days.

Four persons were born between Hina and Pearl. Two persons were born between Pearl and Vidhya. Deepak and Babita were born in the same month. The number of persons born between Deepak and Pearl is the same as the number of persons born between Vidhya and Jignesh. The number of persons born before Faizal is one more than the number of persons born after Teesta. Teesta was born immediately after Sampark. The number of persons between Pearl and Kiran is the same as the number of persons between Teesta and Om. Raavanya was born on an odd-numbered date.

**14) ho among the following person was born in October?**

I. Teesta

II. Vidhya

III. Sampark

(a) Both I and III

(b) Both I and II

(c) Only I

(d) All I, II and III

(e) None of these

**15) Which of the following is correctly matched with respect to the final arrangement?**

(a) October-3-Vidya

(b) June-3- Raavanya

(c) September 18-Pearl

(d) January-18-Deepak

(e) March-3-Hina

**16) The number of persons born before Jignesh is two more than the number of persons born after\_?**

(a) The one who was born on 3 March

(b) The one who was born on 3 June

(c) The one who was born two persons before Teesta

(d) The one who was born immediately after Pearl

(e) None of these

**17) Which of the following statement is/are true with respect to the final arrangement?**

(a) Three persons were born between Sampark and Kiran

(b) Pearl was born on 3 September

€ Jignesh was born immediately after Hina

(d) Babita was born on January

€ All are correct

**18) Who among the following person was born after Faizal?**

I. The one who was born immediately before Deepak.

II. The one who was born on 3 January.

III. Pearl

(a) Only II

(b) Both I and III

(c) Only III

(d) Both II and III

(e) None of these

**Directions (19-23): Study the following information carefully and answer the questions given below.**

The numbers and words arrangement machine, when given an input line of numbers and words rearranges them by following a particular rule in each step. The following is an illustration of input and rearrangement.

**Input:** Jailer 58 Abide 93 64 Fabric 19 Eighth Hanged 35 86 Maiden

**Step I:** ebida 92 Jailer 58 64 Fabric 19 Eighth Hanged 35 86 Maiden



**Step II:** highte 87 ebida 92 Jailer 58 64 Fabric 19  
Hanged 35 Maiden

**Step III:** ricfab 65 highte 87 ebida 92 Jailer 58 19  
Hanged 35 Maiden

**Step IV:** gedhan 59 ricfab 65 highte 87 ebida 92  
Jailer 19 35 Maiden

**Step V:** lerjai 34 gedhan 59 ricfab 65 highte 87  
ebida 92 19 Maiden

**Step VI:** denmai 18 lerjai 34 gedhan 59 ricfab 65  
highte 87 ebida 92

Step VI is the last and final step. Based on the above logic, find the steps for the given input and answer the questions given below.

**Input: Unity 38 79 centre 62 invert 29 mental 34  
wakeup 69 outfit**

**19) What is the difference between the fifth element from the right end in step V and the second number from the left end in step VI?**

- a) 36
- b) 33
- c) 32
- d) 45
- e) None of the above

**20) What is the position of "trecen" in step III of the given input?**

- a) Second from the left end
- b) Eighth from the right end
- c) Second from the right end
- d) Fourth from the left end

e) None of the above

**21) How many words end with the vowel in the last step of the given input?**

- a) One
- b) Two
- c) Four
- d) Three
- e) None of the above

**22) How many elements are there between "68" and "tutfio" in Step IV of the given input?**

- a) One
- b) Three
- c) Four
- d) None
- e) Two

**23) Which among the following elements is third to the right of the fourth element from the left end in step V of the given input?**

- a) 63
- b) tnveri
- c) ynitu
- d) 35
- e) trecen

**Directions (24-28): Study the following information carefully and answer the below questions**

Seven persons i.e. M, N, O, P, Q, R and S are living in different floors of a seven storey building

such that the ground floor is numbered as 1, the floor just above the ground floor is numbered as 2 and so on. They all go to different countries i.e. Italy, China, London, Sri Lanka, Austria, India and Japan. All the information is not necessarily in the same order.

M neither goes to Sri Lanka nor lives just above O's floor. P lives below R. N goes to London and lives on floor number 3. Only three persons live between the one who goes to India and the one who goes to China. S goes to Italy and lives on a floor adjacent to Q's floor. The one, who goes to India, lives on an even-numbered floor. Only two persons live between the floors on which the one who goes to Japan and Sri Lanka live. Q neither goes to Japan nor goes to Sri Lanka. O goes to Japan and lives above the one who goes to China. O doesn't live on the topmost floor. The person who goes to London lives on a floor below the one who goes to Sri Lanka and Japan. Q doesn't live on the floors adjacent to the one, who goes to Sri Lanka and Japan.

**24) Which of the following statements is/are true with respect to the final arrangement?**

- a) Three persons live between the one who goes to Austria and Q
- b) R lives on an even-numbered floor
- c) S lives just below the one who lives just below N's floor

- d) The one who goes to Japan lives above R
- e) All are true

**25) Four of the following five are alike in a certain way and thus form a group. Which among the following one doesn't belong to that group?**

- a) P- Sri Lanka
- b) O- India
- c) N-Austria
- d) Q-Japan
- e) M- India

**26) Who among the following person lives on an odd-numbered floor?**

- a) The one who goes to India
- b) O
- c) The one who goes to Italy
- d) Q
- e) None of the above

**27) Who among the following person lives on the floor numbered 5?**

- a) The one who goes to Italy
- b) R
- c) The one who goes to Japan
- d) The one who lives just above the one who goes to Japan
- e) None of the above

**28) Which of the following statement is not true with respect to the final arrangement?**

- a) The one who goes to India lives on the 5<sup>th</sup> floor
- b) O lives on an even-numbered floor
- c) The one who goes to London lives on an odd-numbered floor
- d) No one lives above R
- e) The one who goes to Italy lives on the bottommost floor

**Directions (29-33): Study the following information carefully and answer the below questions**

Eight persons i.e. A, B, C, D, E, F, G and H are working in three different departments viz. Production, Management and Finance at different posts i.e. manager and general manager. In the finance department, only a manager post is available. They all have different ages. The age of the one who is a general manager is an odd number whereas the age of the one who is a manager is an even number. The age of each person is a whole number less than 90. All the information is not necessarily in the same order. Minimum one person and maximum two persons are working at each post of the given departments.

**Note: If it is given that the person who is a general manager or manager works with A or the one whose age is 65, then it indicates that**

**both the person works in the same department but not necessarily at the same post.**

A is a general manager and works along with E. B is 31 years old and doesn't work along with A. The one whose age is 60 years works along with C. G is 53 years old and works along with A. C neither works in the Management department nor in the Production department. The age of D is equal to the sum of the ages of B and G. The one who works along with D is 2 years older than A. The age of F is less than H. The difference between the ages of D and F is 48. F doesn't work in the Management department. Both F and D works in different departments. The age of E is twice the age of C. The difference between the ages of C and H is 36. The age of A is less than 50 years.

**29) Who among the following person works in the Production department?**

- a) The one who is 29 years old
- b) The one who works along with H
- c) The one who works along with F at the same post
- d) B
- e) Both (a) and (c)

**30) Four of the following five are alike in a certain way and thus form a group. Which among the following one doesn't belong to that group?**

- a) A
- b) G
- c) B
- d) E
- e) F

**31) Which of the following statement is/are true with respect to the final arrangement?**

- a) The one who is 24 years old works in the Finance department
- b) A works in the Management department
- c) G is a manager
- d) Both (a) and (e)
- e) The sum of the ages of A and C is less than 52

**32) What is the sum of the ages of the persons who work in the Management department?**

- a) 120
- b) 221
- c) 117
- d) 115
- e) None of the above

**33) How many persons age is more than H?**

- a) Four
- b) One
- c) Six
- d) Two
- e) Three

**Direction (34-36): Study the following information carefully and answer the question given below.**

**Statement 1:** In a certain code language, 'first friend meet him' is coded as ' fg ty ki ad'; 'hello can we meet' is coded as 'gh jk ki cx'; 'also refer him friend' is coded as 'lm rk ad fg'.

**Statement 2:** In a certain code language, 'We dont meet him' is coded as 'cx db ki ad'; 'true teacher can meet' is coded as 'tu lo jk ki'; 'assigning we can hello' is coded as 'ae cx jk gh'.

**Along with the given two statements, three statements are given below. You have to decide whether the data provided in the three statements are sufficient to answer the question. The statements given below can be used along with the above two statements but cannot be combined together. The two statements above are combined.**

**34) What is the code for the phrase "first meet assigning leader" in the given code language?**

**I:** In a certain code language, 'leader faith can meet' is coded as 'ar ft jk ki'.

**II:** In a certain code language, 'language leader can use' is coded as 'hj ar jk vc'.

**III:** In a certain code language, 'leader can meet' is coded as 'ar jk ki'.

- a) Only III
- b) Only I

- c) Either only I or only II
- d) Either only I or only III
- e) Only II

**35) What is the code for the phrase "true leader can" in the given code language?**

**I:** In a certain code language, 'leader fights back' is coded as 'ar zx jn'.

**II:** In a certain code language, 'survive leader true' is coded as 'ar tu sq'.

**III:** In a certain code language, 'purpose of leader' is coded as 'pr as ar'.

- a) Only II
- b) Only III
- c) Either only I or only II
- d) Either only II or only III
- e) None of these

**36) What is the code for the phrase "right friend true" in the given code language?**

**I:** In a certain code language, 'true friend right' is coded as 'tu fg ko'.

**II:** In a certain code language, 'leader friend teacher' is coded as 'ar fg lo'.

**III:** In a certain code language, 'true him right' is coded as 'tu ad ko'.

- a) Either only I or only III
- b) Only III
- c) Either only II or only III
- d) Either only I or only II
- e) None of these

**Directions (37-41): Study the following information carefully and answer the below questions**

Three married couples- A, B, C, D, E, and F are sitting on the circular table facing towards the centre, but not necessarily in the same order. They are of different age. The couples are not sitting together.

D sits second to the left of the one who sits opposite to the person, whose age is 40 years. One person sits between D and the one whose age is 32 years. E sits to the immediate right of the one, who is the wife of A. E is a female member, who sits opposite to the one, who sits second to the left of the one, whose age is 32 years. F sits to the immediate right of the one, who sits second to the right of A. The age of each husband is more than their wife's age. F is not the spouse of C. The difference between the age of B and B's wife is five years. C does not sit adjacent to A's spouse. The age of A is twice that of the age of E. C's spouse's age is 29 years. The age difference between C and B is 10 years. No one's age is more than fifty.

**37) What is the age of the spouse of D (in years)?**

- a) 35
- b) 29
- c) 20

- d) 40
- e) None of the above

**38) Who among the following person sits opposite to B?**

- a) A
- b) The one who sits to the immediate left of D
- c) D's spouse
- d) The one whose age is 40 years
- e) The one who sits second to the right of A

**39) What is the sum of the ages of D and A's spouse (in years)?**

- a) 65
- b) 61
- c) 70
- d) 73
- e) 75

**40) Four of the following five are alike in a certain way and hence form a group. Which of the following one does not belong to that group?**

- a) C
- b) A
- c) The one who sits to the immediate right of C
- d) The one who sits second to the right of B
- e) The one who sits to the immediate left of D

**41) Which of the following statement is/are true with respect to the final arrangement?**

- I. The age of A is 40 years.
- II. B is the spouse of E.

**III.** One person sits between D and F, when counted from the right of D.

- a) Both I and III
- b) Only III
- c) Both I and II
- d) Only II
- e) All I, II, and III

**Below in each of the questions are given two statements I and II. These statements may be either independent causes or may be effects of independent causes or a common cause. One of these statements may be the effect of the other statements. Read both the statements and decide which of the following answer choice correctly depicts the relationship between these two statements.**

**42. Statements:**

**I.** To choose on the basis of gender and eliminate new life if the gender is not 'favourable' can easily be among humanity's worst moments. Inhuman practice of feeding female infants with the toxic milk of a local herb, the news that a couple had reportedly used the same method to kill their second girl child had child rights activists wringing their hands in frustration.

**II.** Sex selective abortion at scan centres continues as the preferred vehicle for parents (and grandparents) obsessed with son preference. Despite advances in civil rights and

the recognition by most developed nations that discrimination on the basis of sex alone is inherently unjust; a very real and pervasive form of sex discrimination choosing to abort a preborn child based solely on the child's sex is still permitted and practiced even today.

A. Statement I is the cause and statement II is its effect

B. Statement II is the cause and statement I is its effect

C. Both the statements I and II are independent causes

D. Both the statements I and II are effects of independent causes

E. Both the statements I and II are effects of some common cause

**In the question below is given a statement followed by two conclusions numbered I and II. You have to assume everything in the statement to be true, then consider the two conclusions together and decide which of them logically follow beyond a reasonable doubt from the information given in the statement.**

**43. Statement:** The court asked the Petroleum and Safety Explosives Organization (PESO) to review the chemical composition of fireworks, particularly with respect to reducing aluminium content, and submit a report on this within two weeks.

**Assumptions:**

I). The court put the onus on the Centre, state governments, schools and colleges to take up public awareness campaigns informing the public about the harmful effects of firecrackers.

II). Firecrackers alone could not be held as the reason for pollution during Diwali and an entire industry should not be shut down as a consequence. They contended that other factors such as vehicular pollution, construction dust and crop stubble burning also contribute to a great measure to the pollution in Delhi.

A. Only I Implicit

B. Only II Implicit

C. If either I or II Implicit

D. If neither I nor II is Implicit

E. If both I and II are Implicit

***Study the following information carefully and answer the following questions:***

**44. Statement:** Section 8 of Representation of People Act, 1951 lays down certain rules for disqualification of MP's and MLA's that a person convicted by court and sentenced to imprisonment for a term of more than 2 years is disqualified from contesting elections for the imprisoned period and a further period of 6 years since his release.

**Which of the following statements can be considered the serious reason for the**

**disqualification of MP's and MLA's with criminal records from contesting?**

A. The chances of winning for a candidate with declared criminal cases in the Lok Sabha 2019 are 15.5 per cent whereas for a candidate with a clean background, it is 4.7 per cent.

B. Election Commission of India has demanded more independence and Financial Autonomy from Government Control to have more free hands over the Criminalizing Activities in politics.

C. Such persons with criminal records may impact the effectiveness and efficiency of institutions and thereby, eroding the trust of people in the government.

D. As there is no transparency in funding of political parties, therefore sometimes even black money finds its way to win elections.

E. Candidates with serious records seem to do well despite their public image, largely due to their ability to finance their own elections.

**A statement is given followed by six statements that speak further on the same theme and context. Read the statements and answer the questions that follow:**

**45. The stunning majority by which the National Democratic Alliance (NDA) government retained power in the 2019 general election is indeed a massive achievement. A host of factors have been responsible for this overwhelming majority,**

**with issues relating to the political economy also contributing to this landslide.**

i). The government made serious efforts towards several welfare schemes.

ii). Income support scheme provided direct income support of Rs. 6,000 per year to farmers who have up to 2 hectares of land.

iii). Socially and financially weaker sections of society did benefit from one scheme or the other.

iv). Major strides have been made such as green and white revolution, the agrarian crisis has always been a serious cause of concern

v). The ambit of PM-Kisan which was extended to all farmers which meant that an additional 20 million farmers.

vi). India's agricultural sector has gone through massive reforms with both input and output subsidies being an important part of the government budget.

**Which of the following largely contributed to the overwhelming majority?**

A. 1, 3 and 5

B. 5, 2, 4 and 6

C. 2, 5 and 6

D. 1, 2 and 5

E. All of these



**Answer With Explanation**

1) Answer: A

2) Answer: B

3) Answer: E

4) Answer: A

5) Answer: D

**Final Arrangement:**

**Case-1:**

Persons	Date of joining	Working experience
C	12 <sup>th</sup> Jan	5 Years
E	15 <sup>th</sup> Jan	8 Years
A	24 <sup>th</sup> May	9 Years
B	18 <sup>th</sup> July	10 Years
F	26 <sup>th</sup> July	13 Years
D	27 <sup>th</sup> Sept	16 Years

**Persons getting project: C E A B F**

**Explanation:**

- Less than two persons joined before E, who has an experience in an even number.
- The number of persons joined before E is the same as after the one

whose experience is 13 years.

**Case-1:**

Persons	Date of joining	Working experience
E		
		13 Years

**Case-2:**

Persons	Date of joining	Working experience
E		
		13 Years

- B, who does not have an experience in prime number, joined before the one whose experience is 16 years but after the one whose experience is 5 and 9 years.
- The one whose experience is 5 years joins before the one whose experience is 9 years, who joins on 24<sup>th</sup> May.

**Case-1:**

Persons	Date of joining	Working experience
		5 Years
E		
	24 <sup>th</sup> May.	9 Years
B		
		13 Years
		16 Years

**Case-1:**

Persons	Date of joining	Working experience
		5 Years
E		8 Years
	24 <sup>th</sup> May.	9 Years
B		
		13 Years
D	27 <sup>th</sup> Sept	16 Years

**Case-2:**

Persons	Date of joining	Working experience
E		
		5 Years
	24 <sup>th</sup> May.	9 Years
B		
		16 Years
		13 Years

**Case-2:**

Persons	Date of joining	Working experience
E		8 Years
		5 Years
	24 <sup>th</sup> May.	9 Years
B		
D	27 <sup>th</sup> Sept	16 Years
		13 Years

- The number of persons joining between the one whose experience is 5 years and B is the same as between the one whose experience is 9 years and D, who joins in the organization on 27<sup>th</sup> September.
- D has an experience twice that of E's experience.

- A joins after C but before F.
- The one who joins on 26<sup>th</sup> July joined before D but after B. Hence Case-2 gets eliminated

**Case-1:**

Persons	Date of joining	Working experience
C		5 Years
E		8 Years
A	24 <sup>th</sup> May.	9 Years
B		
F	26 <sup>th</sup> July	13 Years
D	27 <sup>th</sup> Sept	16 Years

**Case-2:**

Persons	Date of joining	Working experience
E		8 Years
C		5 Years
A	24 <sup>th</sup> May.	9 Years
B		
D	27 <sup>th</sup> Sept	16 Years
F		13 Years

- The one whose experience is 10 years joined after the one who joined on 12<sup>th</sup> January, which is not the joining date of E.
- B does not join on 15<sup>th</sup> January.

**Case-1:**

Persons	Date of joining	Working experience
C	12 <sup>th</sup> Jan	5 Years
E	15 <sup>th</sup> Jan	8 Years
A	24 <sup>th</sup> May.	9 Years
B	18 <sup>th</sup> July	10 Years
F	26 <sup>th</sup> July	13 Years
D	27 <sup>th</sup> Sept	16 Years

**Conditions:**

The project is given to those people who have a minimum experience of 3 years after joining the ABC organization (Calculate their experience on the following date: 31<sup>st</sup> August 2020).

- Other than D, all persons getting the project (**since D joined in September so working experience can't be 3 years**)

The project is given to the person who joins the organization at first according to the month.

- By comparing months the following sequence is obtained.

C/E A B/F

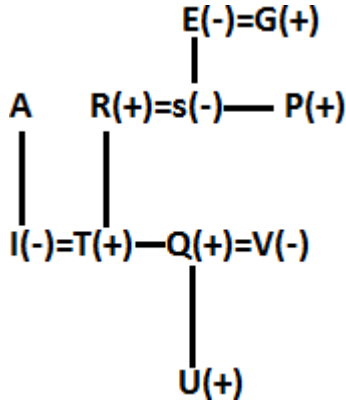
If two persons join in the same month then give priority to the one who joins the organization first according to date.

- By comparing Date and month the following sequence is obtained.

C E A B F

6) Answer: A

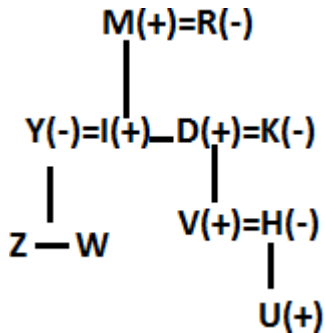
From statement I and statement II and ii we get;



So, P is the brother-in-law of R.

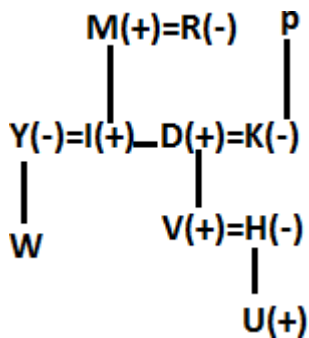
7) Answer: D

From statements I and II and with ii we get:



K is the daughter-in-law of R

From statements I and II and iii we get:



K is the daughter-in-law of R.

8) Answer: C

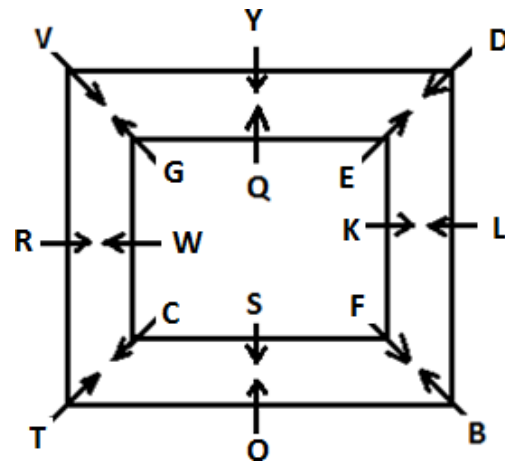
9) Answer: C

10) Answer: C

11) Answer: E

12) Answer: D

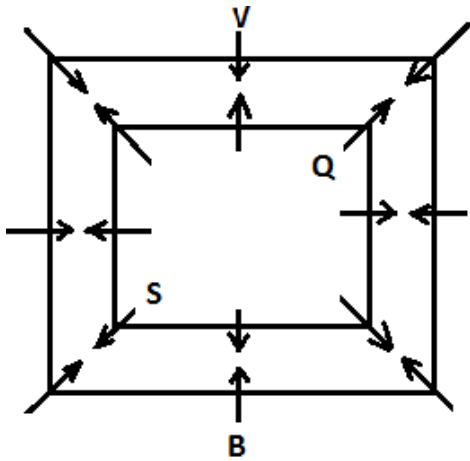
Final Arrangement:



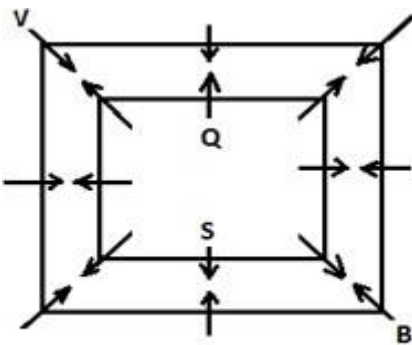
Explanation:

From the given statements,

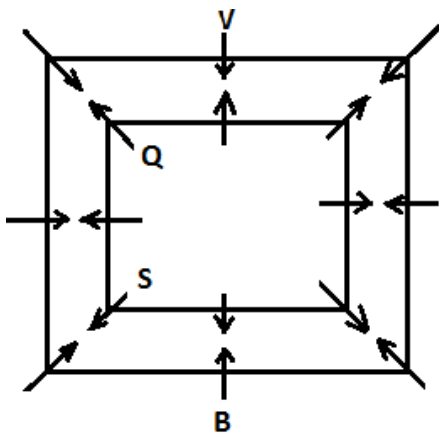
- Two persons sit between B and the one, who faces Q. B faces inside. S sits to the immediate right of the one, who faces B.
- Three persons sit between V and the one, who sits to the immediate right of the one, who faces S. so we have four possible cases i.e. case-1, case-2, case-3 and case-4;



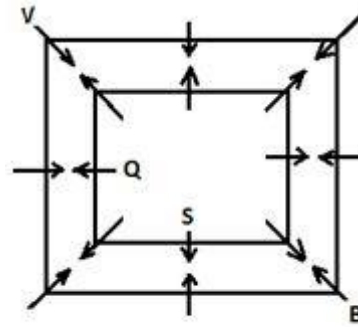
case-1



case-2

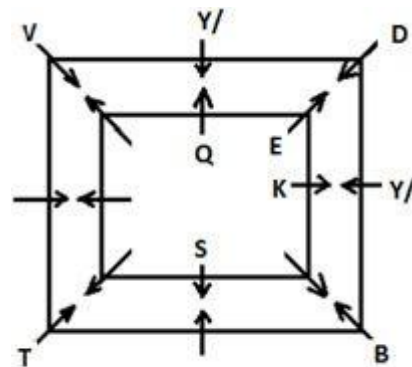


case-3

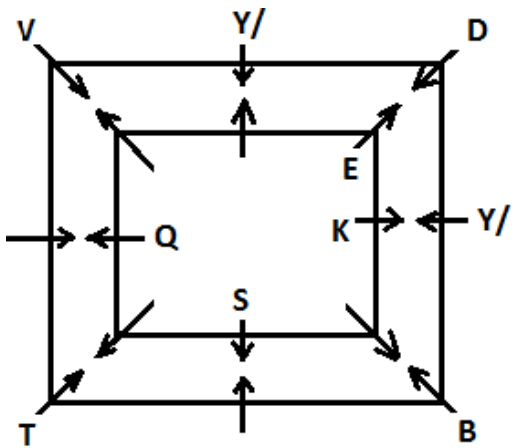


case-4

- E faces D, who sits second to the left of V. E sits at the corner of the table and adjacent to K. So, case-1 and case-3 are eliminated.
- T sits third to the left of the one, who faces K. Y sits on the boundary but not adjacent to T.



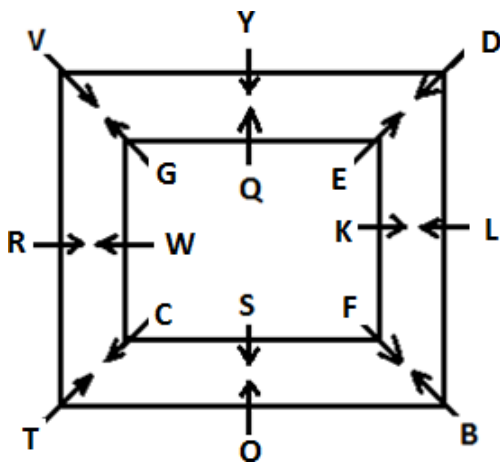
case-2



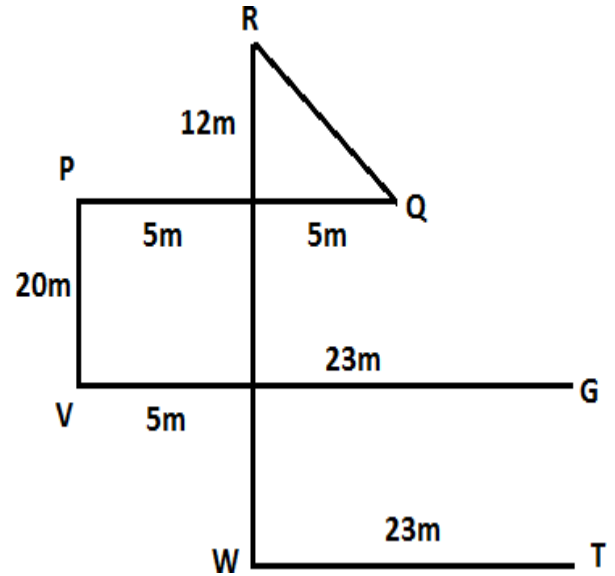
case-4

- The one, who faces L, sits second to the right of Q. W faces R, who sits second to the left of O. So case-4 is eliminated.
- One person sits between F and E. F does not face V. G does not face T. C sits second to the left of G.

So the final arrangement is:



13) Answer: E



14) Answer: B

15) Answer: D

16) Answer: D

17) Answer: E

18) Answer: C

Final Arrangement:

Month	Date	Persons
January	3	Babita
	18	Deepak
March	3	Faizal
	18	Hina
June	3	Jignesh
	18	Kiran
August	3	Raavanya
	18	Om
September	3	Pearl
	18	Sampark
October	3	Teesta
	18	Vidhya

Explanation:

- Four persons were born between Hina and Pearl. Two persons were born between Pearl and Vidhya.
- Vidhya and Pearl were born after June, because their name starts with V and P. Hina was born before June, as the name starts with 'H'.

Month	Date	Persons
January	3	
	18	
March	3	
	18	Hina(4)
June	3	
	18	
August	3	
	18	
September	3	Pearl(5)
	18	
October	3	
	18	Vidhya

- Deepak and Babita were born in the same month. The number of persons born between Deepak and Pearl is the same as the number of persons born between Vidhya and Jignesh.

Month	Date	Persons
January	3	Babita
	18	Deepak
March	3	
	18	Hina(4)
June	3	Jignesh
	18	
August	3	
	18	
September	3	Pearl(5)
	18	
October	3	
	18	Vidhya

- The number of persons born before Faizal is one more than the number of persons born after Teesta.
- Teesta was born immediately after Sampark. The number of persons between Pearl and Kiran is the same as the number of persons between Teesta and Om.
- Raavanya was born on an odd-numbered date.

Month	Date	Persons
January	3	Babita
	18	Deepak
March	3	Faizal
	18	Hina
June	3	Jignesh
	18	Kiran
August	3	Raavanya
	18	Om
September	3	Pearl
	18	Sampark
October	3	Teesta
	18	Vidhya

19) Answer: B

20) Answer: B

21) Answer: D

22) Answer: C

23) Answer: B

**Logic:**

**Words:** Words are arranged in alphabetical order from left to right.

**If the word starts with a vowel:** The first and last letters of the word are interchanged.

**If the word starts with a consonant:** The position of the first three letters and the position of the last three letters are interchanged.

**Numbers:** Numbers are arranged in descending order from left to right.

**If the number is an even:** Add 1 to the number.

**If the number is an odd:** Subtract 1 from the number.

**Input:** Unity 38 79 centre 62 invert 29 mental 34  
wakeup 69 outfit

**Step I:** trecen 78 Unity 38 62 invert 29 mental 34  
wakeup 69 outfit

**Step II:** tnveri 68 trecen 78 Unity 38 62 29  
mental 34 wakeup outfit

**Step III:** talmen 63 tnveri 68 trecen 78 Unity 38  
29 34 wakeup outfit

**Step IV:** tutfio 39 talmen 63 tnveri 68 trecen 78  
Unity 29 34 wakeup

**Step V:** ynitu 35 tutfio 39 talmen 63 tnveri 68  
trecen 78 29 wakeup

**Step VI:** eupwak 28 ynitu 35 tutfio 39 talmen 63  
tnveri 68 trecen 78

24) Answer: C

25) Answer: E

26) Answer: C

27) Answer: D

28) Answer: A

**Final arrangement:**

Floors	Persons	Countries
7	R	Sri Lanka
6	M	India
5	P	Austria
4	O	Japan
3	N	London
2	Q	China
1	S	Italy



**Explanation:**

- N goes to London and lives on floor number 3. Only three persons live between the one who goes to India and the one who goes to China.
- The one, who goes to India, lives on an even-numbered floor. So, here we have two possible cases i.e. case1 and case 2.
- Only two persons live between the floors on which the one who goes to Japan and Sri Lanka live.
- The person who goes to London lives on a floor below the one who goes to Sri Lanka and Japan.

Floors	Case 1		Case 2	
	Persons	Countries	Persons	Countries
7		Japan/Srilanka		Japan/Srilanka
6		India		China
5				
4		Japan/Srilanka		Japan/Srilanka
3	N	London	N	London
2		China		India
1				

- S goes to Italy and lives on a floor adjacent to Q's floor.
- Q neither goes to Japan nor goes to Sri Lanka.

- Q doesn't live on the floors adjacent to the one, who goes to Sri Lanka and Japan.

Floors	Case 1		Case 2	
	Persons	Countries	Persons	Countries
7		Japan/Srilanka		Japan/Srilanka
6		India		China
5				
4		Japan/Srilanka		Japan/Srilanka
3	N	London	N	London
2	Q	China	Q	India
1	S	Italy	S	Italy

- O goes to Japan and lives above the one who goes to China.
- O doesn't live on the topmost floor. From these conditions, case 2 gets eliminated.
- M neither goes to Sri Lanka nor lives just above O's floor. P lives below R.

So the final arrangement is:

Floors	Case 1	
	Persons	Countries
7	R	Sri Lanka
6	M	India
5	P	Austria
4	O	Japan
3	N	London
2	Q	China
1	S	Italy

29) Answer: E

30) Answer: C

31) Answer: A

32) Answer: D

33) Answer: B

**Final Arrangement:**

	Production	Management	Finance
<b>General manager</b>	A(29), G(53)	B(31)	—
<b>Manager</b>	E(48), F(36)	D(84)	C(24), H(60)

**Explanation:**

- A is a general manager and works along with E. So, here we have four possible cases.
- B is 31 years old and doesn't work along with A.
- The one whose age is 60 years works along with C. C neither works in the Management department nor in the Production department.

	Case 1			Case 2		
	Production	Management	Finance	Production	Management	Finance
<b>General manager</b>	B(31)	A,E	—	B(31)	A	—
<b>Manager</b>			C, 60		E	C, 60

	Case 3			Case 4		
	Production	Management	Finance	Production	Management	Finance
General manager	A,E	B(31)	—	A	B(31)	—
Manager			C, 60	E		C, 60

- G is 53 years old and works along with A. So, case 1 and case 3 get eliminated, because minimum one person and maximum two persons are working at each post of the given departments and the age of the one who is a general manager is an odd number.
- The age of D is equal to the sum of the ages of B and G, which means D is 84 years old and at manager post (manager age is an even number).
- The difference between the ages of D and F is 48. F doesn't work in the Management department. Both F and D works in different departments. The age of F is less than H.

	Case 2		
	Production	Management	Finance
General manager	B(31)	A, G(53)	—
Manager	F (36)	D(84),E	C,H( 60)

	Case 4		
	Production	Management	Finance
General manager	A, G(53)	B(31)	—
Manager	E, F(36)	D(84)	C, H(60)

- The one who works along with D is 2 years older than A. The age of A is less than 50 years. So, case 2 gets eliminated here because both G and E works along with D and E's age can't be an odd number and A's age can't be 51.
- The age of E is twice the age of C. The difference between the ages of C and H is 36.

So, the final arrangement is:

Case 4			
	Production	Management	Finance
General manager	A(29), G(53)	B(31)	—
Manager	E(48), F(36)	D(84)	C(24), H(60)

**34) Answer: A**

**Explanation:** In this case, only III gives the following code;

leader-ar; so "first meet assigning leader" is coded as-ty ki ae ar

**35) Answer: E**

**Explanation:** In this case, none of the given statements can give the answer.

**36) Answer: A**

In this from I we get following code-true-tu, right -ko

From III we get codes-

true-tu, right-ko

so "right friend true" is coded as-ko fg tu

**Solution (34-36):**

From statement I and II we have the following codes.

Words	Codes
Meet	Ki
Friend	Fg
Him	Ad
First	Ty
Can	Jk
Hello	Gh
We	Cx
Assigning	Ae
also/refer	Im/rk
Don't	Db
teacher/true	tu/lo

**37) Answer: A**

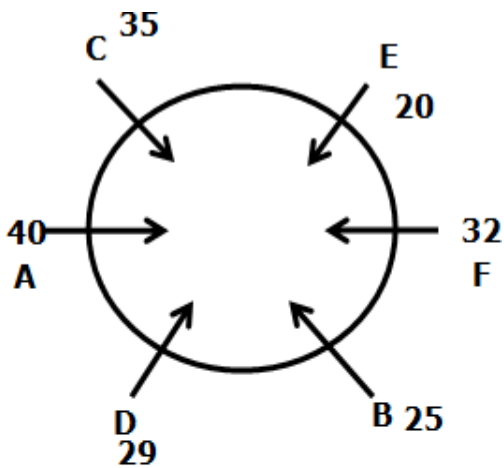
**38) Answer: C**

**39) Answer: B**

**40) Answer: D**

**41) Answer: E**

**Final Arrangement**



$A(+)$   $\equiv$   $F(-)$

$E(-)$   $\equiv$   $B(+)$

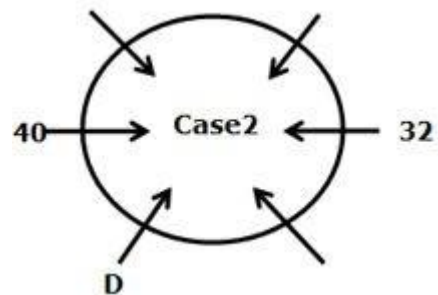
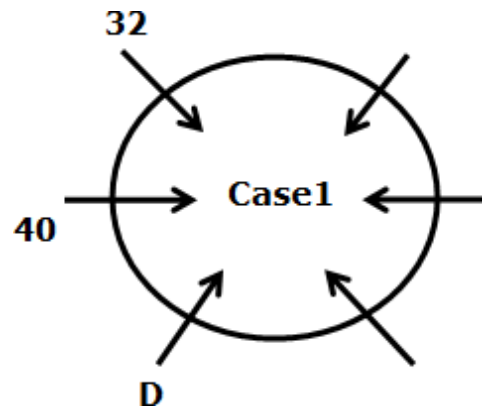
$C(+)$   $\equiv$   $D(-)$

### Common Explanation

We have,

- D sits second to the left of the one who sits opposite to the person, whose age is 40 years.
- One person sits between D and the one whose age is 32 years.

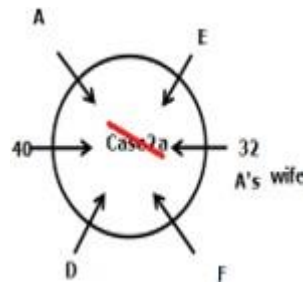
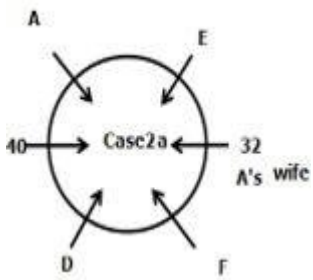
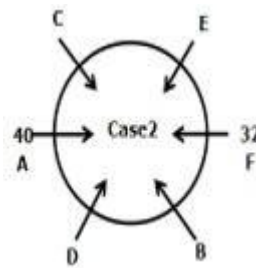
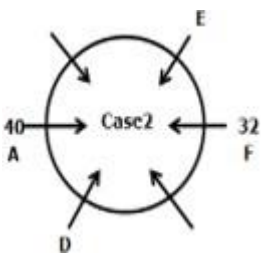
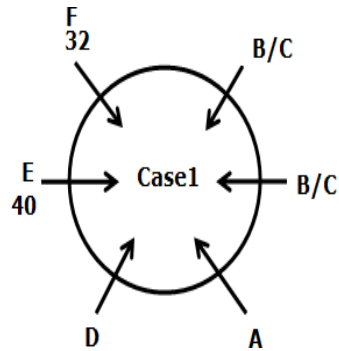
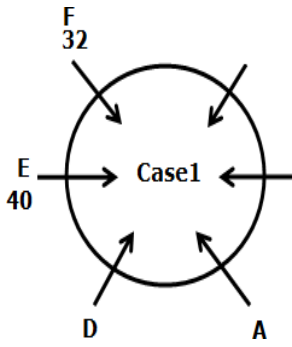
From the above condition, there are two possibilities.



Again we have,

- E sits to the immediate right of the one, who is the wife of A.
- E is a female member, who sits opposite to the one, who sits second to the left of the one, whose age is 32 years.
- F sits to the immediate right of the one, who sits second to the right of A.

From the above condition, there are three possibilities.



(+) == (-)    E(-) == (+)    A(+) == (-)

C(+) == D(-)    E(-) == B(+)    A(+) == F(-)

Again we have,

- The age of each husband is more than their wife's age.
- F is not the spouse of C.

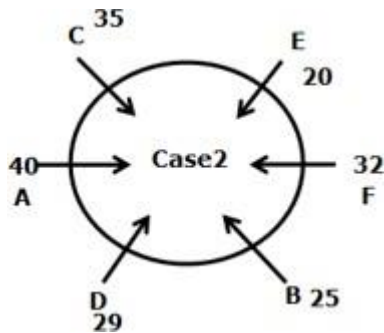
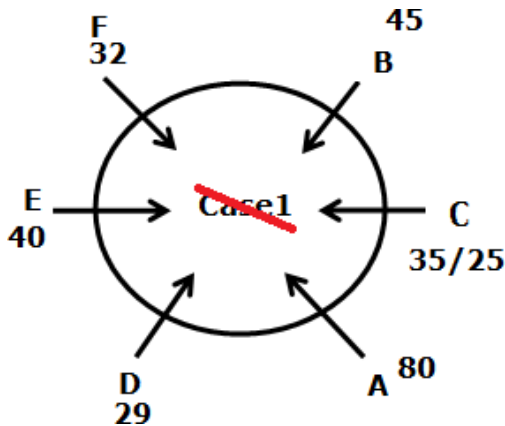
From the above condition, case 2a gets eliminated.

Again we have,

- The difference between the age of B and B's wife is five years.
- C does not sit adjacent to A's spouse.
- The age of A is twice that of the age of E.
- C's spouse's age is 29 years.

- The age difference between C and B is 10 years.
- No one's age is more than fifty.

From the above condition, case 1 gets eliminated. Case 2 shows the final arrangement.



C(+) == D(-)    E(-) == B(+)    A(+) == F(-)

**42) Answer: E**

Both the statements are talking about the effects of sex determination at hospitals i.e. testing the gender of the foetus before birth. Due to sex determination, people tend to abort the child if the gender is not favourable to them. Therefore,

both the statements are effects of some common cause.

**43) Answer: D**

The given statement is saying that the court asked the related Organization (PESO) to review the clinical composition of fireworks, particularly with respect to reducing aluminium content. In this statement it is nowhere mentioned that the court asked the schools colleges to take up public awareness campaigns informing the public about the harmful effects of firecrackers. Also, the statement did not mention that the firecrackers are causing pollution during Diwali and an entire industry. Therefore, both the statements are not implicit.

**44) Answer: C**

MP's and MLA's with criminal records may not produce the successful result and lack the quality of doing something well. This destroys the trust of the people in the government.

Therefore, government laid down certain rules to tackle this.

**45) Answer: E**

The given statement is talking about the victory of NDA government which retained power in 2019 general elections. All the statements are talking about the efforts, schemes and policies

made by the government for the welfare of the people. Therefore 'all of these' is the correct

answer as all the statements are the facts that largely contributed to the overwhelming majority.