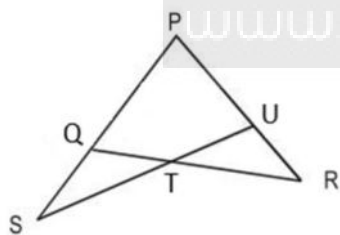


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**Direction (1-7):** In the given questions, two quantities are given, one as 'Quantity 1' and another as 'Quantity 2'. You have to determine relationship between two quantities and choose the appropriate option:

1. Through T, the mid-point of the side QR of a triangle PQR, a straight line is drawn to meet PQ produced to S and PR at U, so that  $PU = PS$

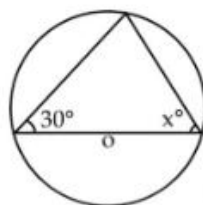


**Quantity I:** If length of  $UR = 2$  units then the length of  $QS$  is ?

**Quantity II:**  $2\sqrt{2}$  units

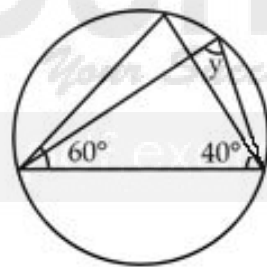
- a. Quantity I > Quantity II
- b. Quantity I  $\geq$  Quantity II
- c. Quantity II > Quantity I
- d. Quantity II  $\leq$  Quantity I
- e. Quantity I = Quantity II or Relation cannot be established

2. **Quantity I** = x



('O' is the centre of the circle)

**Quantity II** = y



- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity I  $\geq$  Quantity II
- d. Quantity I = Quantity II
- e. Relation cannot be established

3. A wooden door wedge is in the shape of a sector of a circle of radius 10 cm with angle 24 degree and constant thickness 3 cm.

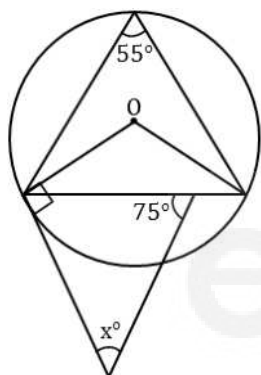
**Quantity I:** Find the volume of wood used in making the wedge.

**Quantity II:**  $20\pi \text{ cm}^3$

- a. Quantity II > Quantity I

- b. Quantity I  $\geq$  Quantity II
- c. Quantity I  $>$  Quantity II
- d. Quantity II  $\leq$  Quantity I
- e. Quantity I = Quantity II or Relation cannot be established

4.



**Quantity I:**  $x^\circ$

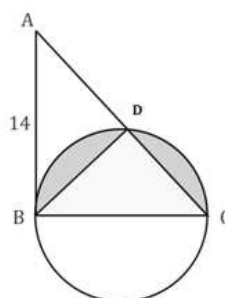
**Quantity II:**  $55^\circ$

- a. Quantity I  $>$  Quantity II
- b. Quantity I  $<$  Quantity II
- c. Quantity I  $\geq$  Quantity II
- d. Quantity I = Quantity II
- e. No relation

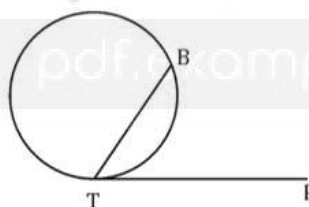
5. Given that D is the midpoint of AC and BC is diameter of circle, and circumference of circle is 44cm.

**Quantity I:** Area of shaded region

**Quantity II:**  $7\pi \text{ cm}^2$



- a. Quantity I  $>$  Quantity II
  - b. Quantity I  $<$  Quantity II
  - c. Quantity I  $\geq$  Quantity II
  - d. Quantity I  $\leq$  Quantity II
  - e. Quantity I = Quantity II or No relation
6. In the given figure, PT is the tangent to the circle,  $\angle BTP = 56^\circ$  and 'A' is any point on the minor arc BT.

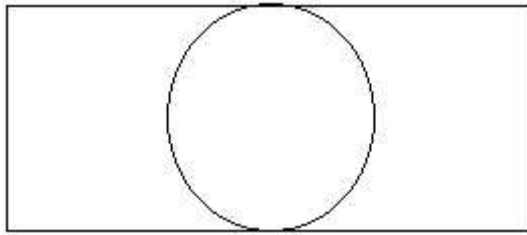


**Quantity I:**  $\angle BAT$

**Quantity II:**  $\angle BOT$

- a. Quantity I  $>$  Quantity II
- b. Quantity I  $<$  Quantity II
- c. Quantity I  $\geq$  Quantity II
- d. Quantity I  $\leq$  Quantity II
- e. Quantity I = Quantity II or No relation

7.



**Quantity I:** Area of circle, given in figure, is half of the area of rectangle. Value of percent by which length of rectangle is more than breadth.

**Quantity II:** A pair of opposite sides of a square when increase by 10cm, then area of figure increased by 400 cm<sup>2</sup>. Value of percent by which area increased.

- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity I ≥ Quantity II
- d. Quantity I ≤ Quantity II
- e. Quantity I = Quantity II or No relation

**Direction (8-10) There are three quantities provided in the questions. You have to find out the values of the quantities and compare them according to the given codes as follows**

@ → >

& → <

\* → ≥

\$ → ≤

# → = (or relationship can't be established)

Example:

**Quantity I:**  $3^2 + 5^3$

**Quantity II:**  $5^2 \times 2^2$

**Quantity III:** 100

- a. @, \$

- b. \*, #

- c. \$, #

- d. &, \*

- e. @, #

**Quantity I > Quantity II = Quantity III**

So, answer is (e)

**8. Quantity I** – Coaching teacher asked a question to three students A, B & C and probability of question not being answered by three students is 0.5, 0.4, 0.7 respectively. Find the probability that at most two students will solve the question.

**Quantity II** – A bag contains 5 green balls & 7 red balls, if three balls drawn at random from bag, then find probability of getting at least 1 green ball.

**Quantity III** – Arun speaks the truth 4 out of 5 times, and Bhavya speaks the truth 6 out of 7 times. What is the probability that they will contradict each other in stating the same fact?

- a. (@, &)

- b. (#, @)

- c. (@, @)

- d. (&, a)

- e. (\*, #)

**9. Quantity I:**  $360 m^7 n^9 \div 120 m^{-2} n^3 \times 24 m^{-4} n^4$ ;  $m > 0$ ,  $n < 0$  (2 MARKS)

**Quantity II:**  $240 x^9 y^7 \div 60 x^4 y^3 \div 3 x^{-2} y^3$ ;  $x < 0$ ,  $y < 0$

**Quantity III:**  $48 a^8 b^{12} \times 5 a^3 b^{-4} \div 6 a^6 b$ ,  $a > 0$ ,  $b < 0$

- a. (@, &)

- b. (#, @)

- c. (\$, @)  
d. (&, @)  
e. (\*, #)

10. 'p', 'q', 'r' and 'n' are positive integers.

$$\text{Quantity I: 'p' :- } \frac{(p+n)^2 - (p-n)^2}{8pn(p+n)^2} = 1$$

$$\text{Quantity II: 'q' :- } \frac{(q+n)^3 - (q-n)^3}{(n^2 + 3q^2)^2} = \frac{1}{8n}$$

$$\text{Quantity III: 'r' :- } \frac{\sqrt{r+n} + \sqrt{r-n}}{\sqrt{r+n} - \sqrt{r-n}} = 2$$

- a. (@, &)  
b. (#, @)  
c. (\$, @)  
d. (&, @)  
e. (\*, #)

**Directions (11 – 15):** Each question contains a statement followed by Quantity I, Quantity II and Quantity III. Which of the following should be placed in the blank spaces of the expression “Quantity I \_\_ Quantity II \_\_ Quantity III” from left to right with respect to the above statements?

**11. Quantity I:** A man can row 20 kmph in still water. If the river is running at 12 kmph, it takes 9 hours more upstream than to go downstream for the same distance. Find the distance?

**Quantity II:** Two trains A and B run in the same direction at 60 kmph and x kmph respectively. If the train A crosses the train B in 20 seconds and the length of train A and train B is 80 m and 120 m respectively. Then find the value of x (Train B is a faster train)?

**Quantity III:** A man travelled a distance of 91 km in 9 hours. He travelled partly on foot at 6 km/hr and partly on bicycle at 12 km/hr. Then find the distance travelled on foot by the man.

- a. >, >  
b. <, <  
c. >, <  
d. <, >  
e. =, >

**12. Quantity I:** Anu has Rs. 6200 in the form of Rs.10, Rs.50 and Rs.100 notes. The ratio of the number of these notes is 7 : 5 : 3. What is the amount of Rs. 50 notes?

**Quantity II:** The profit earned after selling a mobile for Rs. 2540 is the same as loss incurred after selling the same mobile for Rs.2326. What is the cost price of the mobile?

**Quantity III:** The ratio of the radius of circle and sphere is 1: 2. The curved surface area of the sphere is 61600 cm. Find the area of the circle?

- a. <, <  
b. >, <  
c. >, >  
d. =, <  
e. >, =

**13. Quantity I:** In the year 2017, the ratio of males to females in Kolkata is 4:5. In the year 2018 the male population increased by 20% and the female population increased by 10%. If the total population in the year 2018

was 103000, then find the male population in Kolkata in the year 2018?

**Quantity II:** A dealer purchased a Sofa for Rs. 8100. He allows a discount of 10% on its marked price and still gains 15%. Find the marked price of the Sofa?

**Quantity III:** If the rate of interest increased by 5%, then the simple interest increased by Rs.12000 for 5 years. If the same sum deposited in the bank for 10 years at the rate of 10%, find the simple interest for 10 years?

- a. <, <
- b. <, >
- c. >, <
- d. =, <
- e. >, =

**14. Quantity I:** If the ratio of the present age of Ram and Suresh is 7: 8. After 10 years from now the ratio of Suresh and his sister is 3: 2. Difference between the ages of Ram and Suresh of after 15 years is 4 years.

Then find the Suresh sister's age after 7 years?

**Quantity II:**  $x^2 - 51x + 650 = 0$

**Quantity III:** 175 m long train crosses another train of length 100 m in 15 sec, running in same direction. If the speed of the first train is 90 km/hr, then find the speed of the second train (in km/hr)?

- a. <, <
- b.  $\geq$ , >
- c.  $\leq$ , >
- d. >, <

e. >, =

**15. Quantity I:** Ram borrowed the money from Prem at the rate of 12% per annum simple interest. Then Ram deposited that money from the bank of simple interest at 20%. At the end of 18 years, Ram earned the profit of Rs. 540. Find the Sum?

**Quantity II:** The CI and SI on a certain sum for two years at the rate of 5 % is Rs.165 and Rs.150 respectively. Find the sum?

**Quantity III:** A and B started the business by investing Rs. 4000 and Rs. 2000 respectively. After six months A withdrew Rs. 800. The total profit at the end of a year is Rs. 2800, then find the profit share of B?

- a. <, <
- b. <, >
- c. >, >
- d. =, <
- e. =, >

**Directions (16 - 20):** Each question contains a statement followed by Quantity I, II and III. Read the information clearly and answer your questions accordingly. The options represent the relations between these three quantities

- a. >
- b. <
- c. =
- d.  $\leq$
- e.  $\geq$

For example:

**Quantity I** = 200

**Quantity II** = 300

**Quantity III** = 100

Hence, Quantity I < Quantity II > Quantity III

a. A, B

b. B, C

c. B, A

d. E, B

e. B, D

**16. Quantity I:** 4 men can complete a piece of work in 40 days and 16 women can complete the same work in 16 days. In how many days will 5 men and 16 women together complete the same work?

**Quantity II:** Four men and four boys can earn Rs.6000 in 10 days. 10 men and 8 boys can earn Rs.11200 in 8 days. In how many days will 6 men and 8 boys earn Rs.12000?

**Quantity III:** A and B can do a piece of work in 80 days and 60 days respectively. They started working together but after some days B left the work. A alone completed the remaining work in 10 days. Find after how many days B left the work?

a. A, B

b. B, C

c. B, B

d. E, B

e. B, D

**17. Quantity I:** A, B and C invested Rs.4500, Rs.7000 and Rs.9000 respectively to start a business. At the end of one year they earned a profit of Rs. 16400. What will be B's share in the profit?

**Quantity II:** Sam spent 20% of his monthly income on food and 15% on children's education. 40% of the remaining he spent on entertainment and transport together and 30% on medical. He is left with an amount of Rs.975 after all these expenditures. What is Sam's monthly income?

**Quantity III:** 50% of 10000 = ?

a. A, B

b. A, C

c. B, A

d. E, B

e. B, D

**18. Quantity I:** If the compound interest accrued on an amount of Rs.15000 in two years is Rs.3150, what is the rate of interest per annum?

**Quantity II:** The area of a rectangle is equal to the area of a circle whose radius is 7cm. If breadth of the rectangle is 11cm, what is its length?

**Quantity III:** 65% of 120 + ?% of 150 = 105

a. B, B

b. B, C

c. B, A

d. E, B

e. B, D

19. A box contains 6 red, 4 blue, 2 green and 3 yellow balls.

**Quantity I:** If four balls are picked at random, what is the probability that at least one is blue?

**Quantity II:** If two balls are picked at random, what is the probability that both are red?

**Quantity III:** If three balls are picked at random, what is the probability that two are blue and one is yellow?

- a. A, A
- b. B, C
- c. B, A
- d. E, B
- e. B, B

**20. Quantity I:** A, B and C begin to around a circular stadium and they complete their revolutions in 15seconds, 30 seconds and 20 seconds respectively. How many minutes will they come together at the starting point?

**Quantity II:** Average speed of car A is 30kmph and reaches the destination in 6 hours and car B cover the same distance in 4 hours. If car A increases the average speed by 10kmph and car B increases the average speed by 5kmph, what would be the difference in its time taken to reach the destination?

**Quantity III:** Two pipes A and B can fill a tank in 8 minutes and 6 minutes respectively. If they are opened in alternate minutes and pipe A is opened first, in how many minutes will the tank be full?

- a. A, B

b. B, C

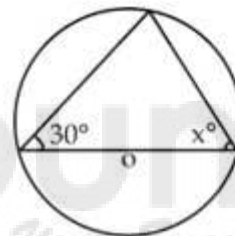
c. B, A

d. E, B

e. B, B

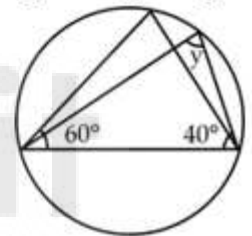
**Direction (21-35):** calculate quantity I and Quantity II on the basis of the given information then compare them and answer the following questions-

**21. Quantity I =  $x$**



(O is the centre of the circle)

**Quantity II =  $y$**



- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity I  $\geq$  Quantity II
- d. Quantity I = Quantity II
- e. Quantity I  $\leq$  Quantity II

**22. Quantity I: 'x'** - Two circles are concentric with center 'O'. Their radii are 8cm and 10cm respectively. 'B' and 'C' are the points of contact of two tangents drawn from bigger circle to smaller circle from point 'A' lying on bigger circle. 'x' is area of quadrilateral ABOC formed in

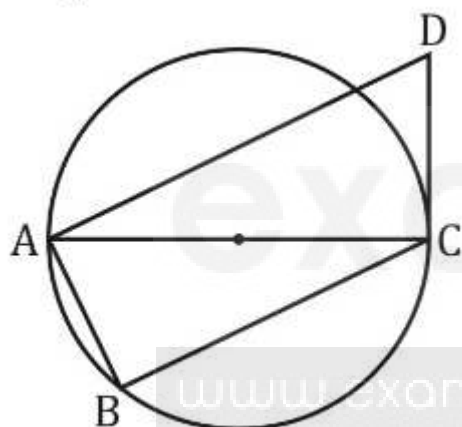
**Quantity II:** - 'y' - The lengths of two parallel sides of a trapezium are 6 cm and 8 cm. If the height of the trapezium be 6 cm, then its area is 'y'

- a. Quantity I > Quantity II

- b. Quantity I < Quantity II
- c. Quantity I  $\geq$  Quantity II
- d. Quantity I  $\leq$  Quantity II
- e. Quantity I = Quantity II or No relation

23. A diagram is given below. AC is the diameter of circle.

AD || BC and  $\angle ACD = 90^\circ$   $\angle ACB \leq 45^\circ$

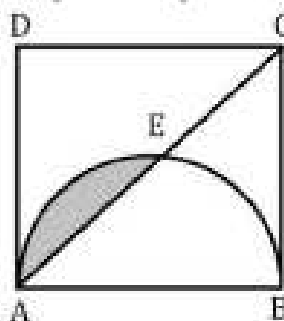


Quantity I:  $\angle ADC$

Quantity II:  $45^\circ$

- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity I  $\geq$  Quantity II
- d. Quantity I  $\leq$  Quantity II
- e. Quantity I = Quantity II or No relation

24. The edge of the cube is 10 cm. Given E is the center of the semicircle and it is mid-point of the diagonal of the given cube.



- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity I  $\geq$  Quantity II
- d. Quantity I  $\leq$  Quantity II
- e. Quantity I = Quantity II or No relation

**25. Quantity I: 'x' :** Two mutually perpendicular chords PQ and EF meet at a point S inside a circle. PS = 12 cm, SQ = 8 cm and FS = 6 cm. 'x' is the area of circle.

**Quantity II: 'y' :** In a circle, two parallel chords are drawn on opposite sides of diameter. Distance between these chords is 14cm. Length of one chord is 16cm while length of another chord is 12cm. 'y' is the area of circle.

- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity I  $\geq$  Quantity II
- d. Quantity I  $\leq$  Quantity II
- e. Quantity I = Quantity II or No relation

**26. Quantity 1:** No. of days in which work will be completed. 20 Men can complete a piece of work in 15 days. One man starts the work and after every day one more man joins the work and this continues till the work is completed.



**Quantity 2:** Percentage profit earned by the shopkeeper.

A shopkeeper bought 150 brushes at the rate of Rs. 250 per brush. He spent Rs. 2500 on transportation and packing. The marked price of brushes is Rs. 320 per brush and the shopkeeper gives a discount of 5% on the marked price.

- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity I  $\geq$  Quantity II
- d. Quantity I  $\leq$  Quantity II
- e. Quantity I = Quantity II or no relation can be established

**27. Quantity I:** difference between B's share and C's share in the profit. 'A' and B started a business with the investments in the ratio of 5 : 3 respectively. After 6 months from the start of the business, C joined them and the respective ratio between the investments of B and C was 2: 3. The annual profit earned by them was Rs. 12300.

**Quantity II:** The principal amount. Difference between the S.I. on a certain amount at the rate of 10% per annum for 2 years and compound interest which is compounded every 6 months at the same rate is Rs. 124.05.

- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity I  $\geq$  Quantity II
- d. Quantity I  $\leq$  Quantity II
- e. Quantity I = Quantity II or no relation can be established

**28.Quantity I:** The speed of the train. A train passes a 50 meters long Platform in 14 seconds and a man standing on the platform in 10 seconds.

**Quantity II:** Rate of interest per annum, If the amount is 2.25 times of the sum after 2 years at compound interest (compound annually).

- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity I  $\geq$  Quantity II
- d. Quantity I  $\leq$  Quantity II
- e. Quantity I = Quantity II or no relation can be established

**29. Quantity I:** A vessel contains a mixture of milk and water in the ratio of 7 : 5. If 9 litre of mixture is sold and replaced by same amount of water then the new mixture contain milk and water in the ratio 7 : 9. Find initial amount of water?

**Quantity II:** A vessel is full of 63 litre of milk. If 9 litre of milk is taken out and replace by water. Further 7 litre of mixture is taken out and replace again with water then find the amount of water at the end?

- a. Quantity I > Quantity II
- b. Quantity I  $\geq$  Quantity II
- c. Quantity I < Quantity II
- d. Quantity I  $\leq$  Quantity II
- e. Quantity I = Quantity II or No relation can be established

**30. Quantity I:** There are two types of animals in a pet shop. Some are puppies and some are kittens. Each kitten

takes 8 biscuits and each puppy takes 11 biscuits. If 500 biscuits were eaten by 55 animals. Find the number of puppies?

**Quantity II:** A, B, C, D purchased a toffees of Rs. 56 the share of  $B + C + D$  is 460% of A and the share of  $A + C + D$  is 366.66% of B and the share of C is 40% of  $A + B + D$ . Find the share of D.

- a. Quantity I > Quantity II
- b. Quantity I  $\geq$  Quantity II
- c. Quantity I < Quantity II
- d. Quantity I  $\leq$  Quantity II
- e. Quantity I = Quantity II or No relation can be established

**31. Quantity I:** Vessel A contains milk and water in the ratio of 2:3 and vessel B contains Milk and Water in the ratio of 5:7, two vessels are mixed to make third vessel C, what percentage of water in the final mixture?

**Quantity II:** There are two tanks P and Q having Alcohol and water in the ratio 1:4 and 3:5 respectively, two tanks mixed together and form a third tank S, what percentage of water in the final mixture?

- a. Quantity I  $\geq$  Quantity II
- b. Quantity I = Quantity II (or) No relation
- c. Quantity I > Quantity II
- d. Quantity I  $\leq$  Quantity II
- e. Quantity I < Quantity II

32. Capacities of three vessels A, B and C are in the ratio 2 : 3 : 5 respectively. First, vessel A is filled with milk and then content of vessel A is poured into vessel B.

Now vessel B is filled with water then content of vessel B is poured into vessel C. Now vessel C is filled with milk. Quantity of milk in vessel C is 45 liters more than that water in vessel C.

**Quantity I:** Capacity of vessel C in liters.

**Quantity II:** 60 liters.

- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity I  $\geq$  Quantity II
- d. Quantity I  $\leq$  Quantity II
- e. Quantity I = Quantity II or No relation

**33. Quantity I:** 'x' : 'x' is the difference between the speeds of P and Q. Distance between A and B are 60 km. P and Q start from A at same time & meet 1st time at a place 12 km from B. They return to A immediately after reaching B. The speed of slower person is 48 km/hr.

**Quantity II:** 'y' : 'y' is the average speed of train if a distance of 600 km is to be covered in 2 parts. In 1st phase 120 km is travelled by train and rest by car and it took total of 8 hrs, but if 200 km is covered by train and rest by car it takes 20 min more.

- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity I  $\geq$  Quantity II
- d. Quantity I  $\leq$  Quantity II
- e. Quantity I = Quantity II or No relation

34. A group of 6 artists is to be selected out of 5 dancers and 7 singers.

**Quantity I** – What is the probability that the team has at least one dancer?

**Quantity II** – What is the probability that the team has exactly 3 dancers and 3 singers?

- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity I  $\geq$  Quantity II
- d. Quantity I  $\leq$  Quantity II
- e. Quantity I = Quantity II

**35. Quantity I** – A bag contains five red balls, six green balls, 'a' yellow balls & 'b' blue balls. Probability of drawing one yellow ball is  $\frac{1}{6}$ , while probability of drawing one blue ball is  $\frac{2}{9}$ . If two balls are drawn from bag without replacing, then find probability that one of them is red and other is yellow.

**Quantity II** – A bag contains dices only in three colors, eight green color dice, 'x' blue color dice and 'y' yellow color dice. Probability of drawing one blue dice is  $\frac{7}{20}$ , while probability of drawing one yellow dice is  $\frac{1}{4}$ . If two dices drawn at random without replacement, then find probability that one of them is blue and the other is green.

- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity I  $\geq$  Quantity II
- d. Quantity I  $\leq$  Quantity II
- e. Quantity I = Quantity II or no relation

**Direction (36-50):** calculate quantity I and Quantity II on the basis of the given information then compare them and answer the following questions

**36. Quantity I:** 'x' : B alone can do the work in 'x' days.

A can complete a work in 5 more days than B while A does the same work in 9 more days than C. If A and B can complete the whole work in same time as time taken by C alone to do the whole work.

**Quantity II:** 'y' : 'y' is the days taken by 8 men and 14 women to reap  $\frac{7}{12}$  part of 360-hectare land by working 7 hrs per day if 6 men and 10 women can reap  $\frac{5}{12}$  part of the land in 15 days by working 6 hrs per day. It is also given that work of 2 men is equal to that of 3 women.

- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity I  $\geq$  Quantity II
- d. Quantity I  $\leq$  Quantity II
- e. Quantity I = Quantity II or No relation

**37. P, Q and R** can complete a piece of work in 8, 12 and 24 days respectively. They work on alternate days.

**Quantity I:** Time taken by them to complete the work if P works on day 1, Q works on day 2 and R works on day 3 and so on.

**Quantity II:** Time taken by them to complete the work if Q works on day 1, R works on day 2 and P works on day 3 and so on.

- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity I  $\geq$  Quantity II

d. Quantity I  $\leq$  Quantity II

e. Quantity I = Quantity II or No relation

38. 4 men and 6 women started a work. They completed half of the work in 25 days. Then one woman was replaced by one man and the work got completed in next 24 days.

**Quantity I:** Time taken by 10 men to complete the work.

**Quantity II:** Time taken by 12 women to complete the work.

a. Quantity I  $>$  Quantity II

b. Quantity I  $<$  Quantity II

c. Quantity I  $\geq$  Quantity II

d. Quantity I  $\leq$  Quantity II

e. Quantity I = Quantity II or No relation

39. **Quantity I:** Percentage of milk in final mixture. In a 90 litres mixture of milk and water, percentage of water is only 30%. The milkman gave 18 litres of this mixture to a customer and then added 18 litres of water to the remaining mixture.

**Quantity II:** The percentage of acid in the original mixture. When one litre of water is added to a mixture of acid and water, the new mixture contains 20% acid. When one litre of acid is added to the new mixture, then the resulting mixture contains 100/3% acid.

a. quantity I  $>$  quantity II

b. quantity I  $<$  quantity II

c. quantity I  $\geq$  quantity II

d. quantity I  $\leq$  quantity II

e. quantity I = quantity II or no relation can be established

40. The probabilities of Virat hitting a century in a match against Australia and New Zealand are 0.25 and 0.2 respectively and that of Rohit are 0.2 and 0.15 respectively.

**Quantity I:** Probability of either Virat or Rohit hitting century in a match against New Zealand.

**Quantity II:** Probability of at least one of Virat and Rohit hitting a century in a match against Australia.

a. Quantity I  $>$  Quantity II

b. Quantity I  $<$  Quantity II

c. Quantity I  $\geq$  Quantity II

d. Quantity I  $\leq$  Quantity II

e. Quantity I = Quantity II or No relation

41. Ajith can do a piece of work in 10 days, Bala in 15 days. They work together for 5 days, the rest of the work is finished by Chand in two more days. They get Rs. 6000 as wages for the whole work

**Quantity I:** What is the sum of Rs.100 and the daily wage of Bala?

**Quantity II:** What is the daily wage of Chand?

a. Quantity I  $>$  Quantity II

b. Quantity I  $<$  Quantity II

c. Quantity I  $\geq$  Quantity II

d. Quantity I  $\leq$  Quantity II

e. Quantity I = Quantity II or relation cannot be established

42. The largest possible right circular cylinder is cut out from a wooden cube of edge 7 cm.

**Quantity I:** volume of the cube left over after cutting out the cylinder

**Quantity II:** Surface area of cube remained after cutting out the cylinder.

Note: compare the magnitudes of both quantities.

- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity I  $\geq$  Quantity II
- d. Quantity I  $\leq$  Quantity II
- e. Quantity I = Quantity II or No relation

43. P can complete a piece of work in 16 days which Q can complete in 32 days. P and Q work on alternate days.

**Quantity 1:** Time taken by them to complete the work if P starts on day 1.

**Quantity 2:** Time taken by them to complete the work if Q starts on day 1.

- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity I  $\geq$  Quantity II
- d. Quantity I  $\leq$  Quantity II
- e. Quantity I = Quantity II or No relation

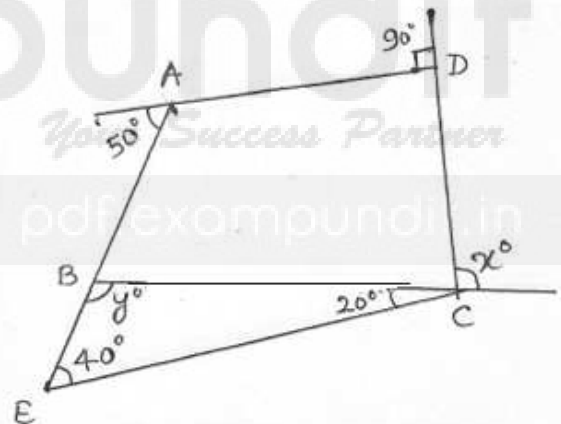
44. A Bike is available at 40% discount at showroom "A" and the same is available at only 25% discount at showroom "B". Mr. Arun has just sufficient amount of Rs. 60,000 to purchase it at showroom "A".

**Quantity I:** Difference between Marked Price and SP at Show Room "A"

**Quantity II:** Difference between Marked Price and SP at Show Room "B"

- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity I  $\geq$  Quantity II
- d. Quantity I  $\leq$  Quantity II
- e. Quantity I = Quantity II or relation cannot be established

45. Answer the question based on the figure given below: (figure not to scale)

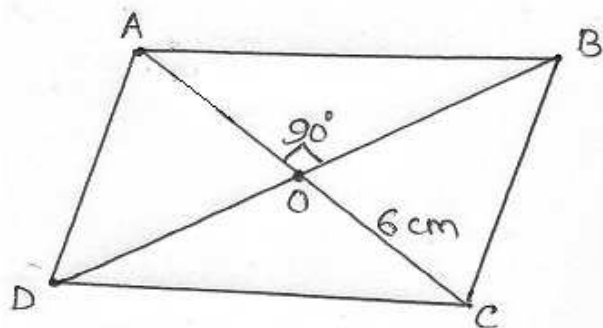


**Quantity I:** angle x

**Quantity II:** 110

- a. Quantity I > Quantity II
- b. Quantity I  $\geq$  Quantity II
- c. Quantity II > Quantity I
- d. Quantity II  $\geq$  Quantity I
- e. Quantity I = Quantity II or Relation cannot be established

46. AB is parallel to DC and AD is parallel to BC. BD is 4 cm greater than AC. AC and BD are the diagonal with O as point of intersection.

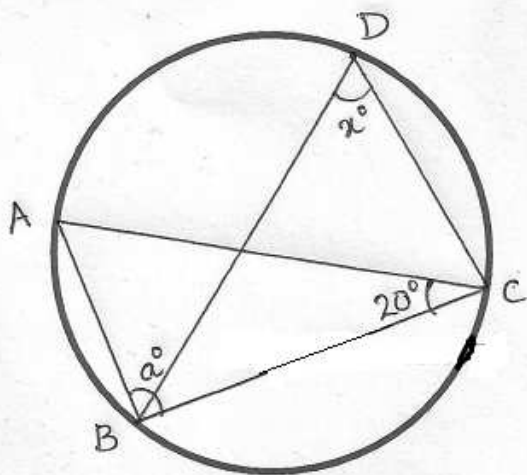


**Quantity I:** AB

**Quantity II:** 9 cm

- a. Quantity I > Quantity II
- b. Quantity I  $\geq$  Quantity II
- c. Quantity II > Quantity I
- d. Quantity II  $\geq$  Quantity I
- e. Quantity I = Quantity II or Relation cannot be established

47. The figure shows a circle and a figure inscribed inside the circle. Angle  $a^\circ$  is an acute angle



**Quantity I:** Angle  $x^\circ$

**Quantity II:** 70

- a. Quantity I > Quantity II

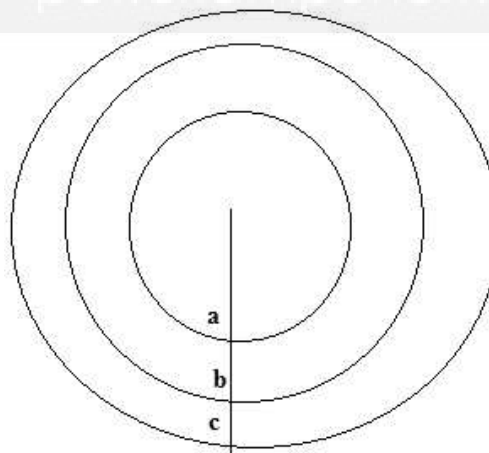
b. Quantity I  $\geq$  Quantity II

c. Quantity II > Quantity I

d. Quantity II  $\geq$  Quantity I

e. Quantity I = Quantity II or Relation cannot be established

48. 3 racers A, B and C take part in a race. The racing track is in the form of concentric circles with 3 track one for A, one for B and one for C as shown in the figure. A has to start from a and reach back to a to complete his race. Similarly B and C will start and end at b and c respectively. The radius of outer most track is 77 m. and the distance between two consecutive track is 7 cm. Speed of A = 8 m/s, Speed of B = 9 m/s and Speed of C = 9.5 m/s



**Quantity I:** Speed of the person who reaches his destination first.

**Quantity II:** 9

a. Quantity I > Quantity II

b. Quantity I  $\geq$  Quantity II

c. Quantity II > Quantity I

d. Quantity II  $\geq$  Quantity I

e. Quantity I = Quantity II or Relation cannot be established

**49. Quantity I** – Breadth of rectangle. Sum of circumference of a circle and perimeter of a rectangle is 154 cm. and area of the circle is  $346.5 \text{ cm}^2$ . Length of the rectangle is  $166\frac{2}{3}\%$  more than radius of circle.

**Quantity II** – Side of square. Circumference of a circle is 132 cm and area of circle is  $1130 \text{ cm}^2$  more than area of square.

a. Quantity I  $>$  Quantity II

b. Quantity I  $<$  Quantity II

c. Quantity I  $\geq$  Quantity II

d. Quantity I  $\leq$  Quantity II

e. Quantity I = Quantity II or no relation

**50. Quantity I** – Three times of amount invested by Gopal. Arun and Gopal entered into a business with the

capital of Rs.  $(P + 1200)$  and Rs.  $(P + 1500)$  respectively. After 8 months from starting, Arun withdrew half of his investment and Gopal doubled his investment. At the end of year Arun got Rs. 4250 out of total profit of Rs. 11250.

**Quantity II** – Profit share of C. A and B started a business with initial investment of Rs. 27000 and Rs. 36000 respectively. After 4 months A withdraw Rs. 5000, B added Rs. 6000 and C joined with Rs. 35000. At the end of an year total profit of Rs. 130500 is obtained.

a. Quantity I  $>$  Quantity II

b. Quantity I  $<$  Quantity II

c. Quantity I  $\geq$  Quantity II

d. Quantity I  $\leq$  Quantity II

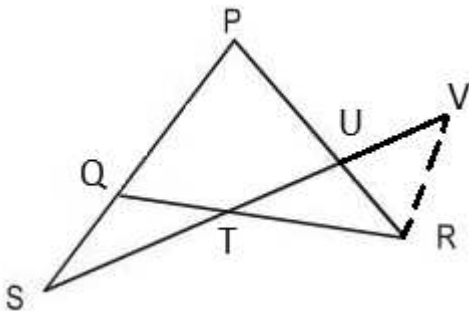
e. Quantity I = Quantity II or no relation

### Answer with Detailed Solution

#### **Solution (1-7)**

**1. C**

I. We have  $QT = TR$  and  $PU = PS$ .  $UR = 2$  units



We draw  $RV \parallel PS$  that meets  $SU$  extended at  $V$ .

In  $\triangle QST$  and  $\triangle TVR$   $\angle QTS = \angle VTR$  [Opposite angles]

$\angle QST = \angle TVR$  [Alternate angles as  $PS \parallel VR$ ]

$QT + TR$

$\therefore \triangle QST$  and  $\triangle TVR$  are congruent.

$\therefore QS = VR$  ----- (i)

Now,  $\angle QST = \angle PUS = \angle VUR = \angle UVR$

$\therefore$  In  $\triangle UVR$

$\angle VUR = \angle RVU$

or,  $RV = UR = 2$  ----- (ii)

From (i) and (ii)

$QS = VR = UR = 2$  units

II.  $2\sqrt{2} = 2.828$  units

So,  $II > I$ .

**2. B**

$$x = 180 - (90 + 30)$$

$$= 90 - 30$$

$$= 60^\circ$$

$$y = 180 - (60 + 40) \text{ (angles subtended by same arc in the same segment are equal)}$$

$$= 80^\circ$$

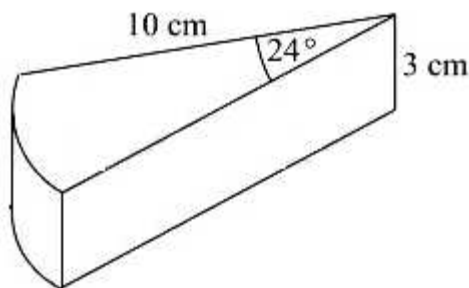
$\therefore$  Quantity I < Quantity II

**3. E**

I. The area of the top face of the wedge is the area of a sector of radius 10 cm and angle 24 degree.

$$\text{Area} = 24 \text{ degree} / 360 \text{ degree} \times \pi \times 10^2 = 20\pi / 3 =$$

$$20.94 \text{ cm}^2$$



The volume of the wedge = Area  $\times$  3 =  $20\pi = 62.83$

$\text{cm}^3$

II.  $20\pi \text{ cm}^3$

Hence  $I = II$ .

4.

$$(x^a)^c = x^e$$

$$\frac{x^{2b}}{x^a} = (x^{5a}) \times (x^d) \times (x^b)$$

**5. A**

diameter of circle BC = d cm

$$\pi d = 144 \text{ cm}$$

$$d = 14 \text{ cm}$$

$$\text{Area of the semi-circle} = \frac{1}{2} \times \frac{22}{7} \times 7 \times 7$$

$$= 77 \text{ cm}^2$$

$$\Delta ABC = 2 \Delta BDC \text{ (D is a mid point at AC)}$$

$$\Delta BDC = \frac{1}{2} \times 14 \times 14 \times \frac{1}{2}$$

$$= 49 \text{ cm}^2$$

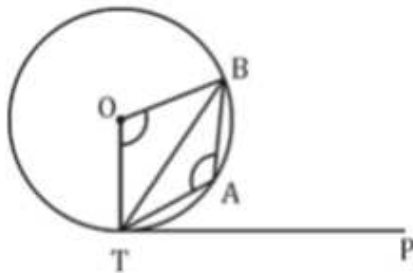
$$\text{Area of the shaded region} = 77 - 49$$

$$= 28 \text{ cm}^2$$

Hence quantity 1 > Quantity 2



**6. A**



Let 'O' be the centre of circle

$$\angle OTB = \angle OTP - \angle BTP = 90^\circ - 56^\circ = 34^\circ$$

$$\angle OTB = \angle OBT = 34^\circ \text{ (since } OT = OB = \text{radius)}$$

$$\angle TOB = 180 - \angle OTB - \angle OBT = 180^\circ - 34^\circ - 34^\circ = 112^\circ$$

$$\angle BAT = \frac{1}{2} \text{ reflex } \angle BOT = \frac{1}{2} \times (360^\circ - 112^\circ) = \frac{1}{2} \times 248^\circ = 124^\circ$$

**Quantity 1 > Quantity 2**

**7. A**

Let length of rectangle = L

Breadth of rectangle = b

Radius of circle = b/2

Now,

$$L \times b = 2 \times \pi (b/2)^2$$

$$L = \pi b$$

$$\% \Rightarrow (\pi b^2 - b^2) \times 100$$

$$= 4 \times 100 = 400\%$$

Quantity II:

Square get change into the rectangle.

By increasing 10 cm two opposite sides, Area increased

→ 400

Side →  $400/10 = 40$  cm

Area of square =  $40 \times 40 = 1600$  square cm.

% by which area increase →  $400/1600 \times 100 = 25\%$

**Quantity I > Quantity II**

**Solution (8-10)**

**8. C**

Quantity I

Probability of at most two students will solve the question

= 1 – probability of all three students will solve the question

$$= 1 - (0.5) \times (0.6) \times (0.3)$$

$$= 1 - 0.09$$

$$= 0.91$$

Quantity II

$$\text{Total balls} = 5 + 7 = 12$$

Probability of getting at least 1 green ball = 1 – probability of no green

$$= 1 - \frac{7}{12}$$

$$= \frac{5}{12} \approx 0.4167$$

Quantity III – P (Arun speak truth)=45 P (Bhavya speak truth)=67

Required probability =  $45 \times 17 + 15 \times 67 = 1035 = 27 \approx 0.28$

Quantity I > Quantity II > Quantity III

**9. B**

**Quantity I:**  $\frac{360}{120} \times 24 \cdot m^{7+2-4} \cdot n^{9-3+4} = 72 \cdot m^5 \cdot n^{10}$

If  $m > 0$ ,  $n < 0$ , then Quantity I > 0

**Quantity II:**  $\frac{240}{60 \times 3} x^{9-4+2} y^{7-3-3} = \frac{4}{3} x^7 y$

If  $x < 0$ ,  $y < 0$ , then quantity II > 0

**Quantity III:**  $\frac{48 \times 5}{6} a^{8+3-6} \cdot b^{(12-4-1)} = 40 a^5 b^7$

If  $a > 0$ ,  $b < 0$ , then Quantity III < 0.

∴ Relation between Quantity I and Quantity II can't be established but

Quantity II > Quantity III

∴ (#, @) is our correct answer.

Quantity I > Quantity II = Quantity III

**10. D**

**Quantity I:**  $\frac{(p+n)^2 - (p-n)^2}{8pn(p+n)^2} = 1$

$\frac{p^2 + n^2 + 2pn - (p^2 + n^2 - 2pn)}{8pn(p+n)^2} = 1$

$\frac{4pn}{8pn(p+n)^2} = 1$

$\frac{1}{2} = (p+n)^2$

$p = \frac{1}{\sqrt{2}} - n$

**Quantity II:**  $\frac{(q+n)^2 - (q-n)^2}{(n^2 + 3q^2)^2} = \frac{1}{8n}$

$\frac{q^3 + n^3 + 3q^2n + 3n^2q - (q^3 - n^3 - 3q^2n + 3n^2q)}{(n^2 + 3q^2)^2} = \frac{1}{8n}$

$\frac{2n^3 + 6q^2n}{(n^2 + 3q^2)^2} = \frac{1}{8n}$

$\frac{2n(n^2 + 3q^2)}{(n^2 + 3q^2)^2} = \frac{1}{8n}$

$16n^2 = n^2 + 3q^2$

$q = \sqrt{5}n$

**Quantity III:**  $\frac{\sqrt{r+n} + \sqrt{r-n}}{\sqrt{r+n} - \sqrt{r-n}} = 2$

$\frac{\sqrt{r+n} + \sqrt{r-n}}{\sqrt{r+n} - \sqrt{r-n}} = 2(\sqrt{r+n} - \sqrt{r-n})$

$3\sqrt{r-n} = \sqrt{r+n}$

$9(r-n) = (r+n)$

$8r = 10n$

$r = \frac{10n}{8} = 1.25n$

Quantity I < Quantity II > Quantity III

**Solution (11-15)**

**11. E**

From quantity I,

$d/(20 - 12) - d/(20 + 12) = 9$

$d/8 - d/32 = 9$

$3d/32 = 9$

$d = 32 \times 3 = 96 \text{ km}$

From quantity II,

$200 = (x - 60) \times 5/18 \times 20$

$36 = (x - 60)$

$X = 96 \text{ kmph}$

From quantity III,

Let the distance travelled on foot be x km.

Then distance travelled on bicycle =  $(91 - x) \text{ km}$

Now,  $(x/6) + ((91 - x)/12) = 9$

$(2x + 91 - x)/12 = 9$

$(X + 91)/12 = 9$

$X + 91 = 108$

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$$X = 17 \text{ km}$$

$$\text{Quantity I} = \text{Quantity II} > \text{Quantity III}$$

**12. B**

From quantity I,

$$\text{Ratio} = 7x : 5x : 3x$$

$$10*7x + 50*5x + 3x*100 = 6200$$

$$620x = 6200$$

$$X=10$$

$$\text{Rs.50 notes} = 10*5*50 = \text{Rs. 2500}$$

From quantity II,

$$\text{Profit} = \text{Loss}$$

$$\text{SP1} - \text{CP} = \text{CP} - \text{SP2}$$

$$2540 + 2326 = 2\text{CP}$$

$$\text{CP} = (2540 + 2326)/2 = \text{Rs. 2433}$$

From quantity III,

$$4*(22/7)*r*r = 61600$$

$$r=70 \text{ cm}$$

$$\text{Radius of the circle} = (1/2)*70 = 35 \text{ cm}$$

$$\text{Area of the circle} = (22/7)*35*35 = 3850 \text{ cm}^2$$

$$\text{Quantity I} > \text{Quantity II} < \text{Quantity III}$$

**13. C**

From quantity I

$$4x*(120/100 + 5x*110/100) = 103000$$

$$4.8x + 5.5x = 103000$$

$$10.3x = 103000$$

$$X = 10000$$

$$\text{Male population} = 4*10000*120/100 = 48000$$

From quantity II,

$$\text{Selling price of Sofa} = 8100*(115/100) = \text{Rs. 9315}$$

$$\text{Marked price}*(90/100) = 9315$$

$$\text{Marked price of Sofa} = 9315*(100/90) = \text{Rs. 10350}$$

From quantity III,

$$(P*5*(R+5)/100) - (P*5*R/100) = 12000$$

$$5PR + 25P - 5PR = 120000$$

$$25P = 120000$$

$$P = 48000$$

$$\text{SI} = 48000*10*10/100 = 48000$$

$$\text{Quantity I} > \text{Quantity II} < \text{Quantity III}$$

**14. C**

From quantity I,

$$\text{Present age of Ram} = 7x$$

$$\text{Present age of Suresh} = 8x$$

$$\text{Present age of Suresh's sister} = y$$

$$\text{Difference} = (8x+15) - (7x+15) = 4$$

$$X=4 \text{ years}$$

$$\text{Suresh age} = 8*4 = 32$$

$$\text{After 10 years the age will be} = 32+10 = 42 \text{ years}$$

$$\text{Suresh's sister age after 10 years} = (2/3)*42 = 28 \text{ years}$$

$$\text{Suresh's sister age after 7 years} = 28 - 3 = 25 \text{ years}$$

From quantity II,

$$X^2 - 51y + 650 = 0$$

$$(x - 26)(x - 25) = 0$$

$$X = 26, 25$$

From quantity III,

$$T = D/S$$

According to the question,

$$15 = (175 + 100) / [(90 - x)*(5/18)]$$

$$15*[(90 - x)*(5/18)] = 275$$

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$$[(90 - x) * (5/18)] = 275/15$$

$$(90 - x) = (275/15) * (18/5)$$

$$90 - x = 66$$

$$X = 24 \text{ km/hr}$$

The speed of the second train = 24 km/hr

Quantity I  $\leq$  Quantity II  $>$  Quantity III

## 15. B

From quantity I,

$$(P * 20 * 18/100) - (P * 12 * 18/100) = 540$$

$$P * 18 * 8 = 54000$$

$$P = 54000 / (18 * 8) = \text{Rs. } 375$$

From quantity II,

$$\text{Difference of SI and CI} = 165 - 150 = 15$$

$$\text{Diff} = \text{Sum} * (r/100)2$$

$$15 = \text{Sum} * (5/100)2$$

$$(15 * 100 * 100)/25 = \text{Sum}$$

$$\text{Sum} = 6000$$

From Quantity III,

$$\text{Profit ratio of A and B} = (4000 * 6 + 3200 * 6) :$$

$$(2000 * 12) = 9 : 5$$

$$\text{B's share} = (5/14) * 2800 = \text{Rs. } 1000$$

Quantity I  $<$  Quantity II  $>$  Quantity III

## Solution (16-20)

### 16. C

Quantity I:

$$4 \text{ men complete the work} = 1/40$$

$$5 \text{ men complete the same work} = 1/32$$

$$16 \text{ women} = 1/16$$

5 men and 16 women complete the

$$\text{work} = 1/32 + 1/16 = 3/32$$

$$= 32/3 \text{ days} = 10(2/3) \text{ days}$$

Quantity II:

$$(4m + 4b) * 10 = 6000$$

$$4m + 4b = 600$$

$$m + b = 150$$

$$(10m + 8b) * 8 = 11200$$

$$10m + 8b = 1400$$

$$5m + 4b = 700$$

$$m = \text{Rs. } 100$$

$$b = \text{Rs. } 50$$

$$6m + 8b = 6 * 100 + 8 * 50 = 1000$$

$$\text{Number of days} = 12000/1000 = 12 \text{ days}$$

Quantity III:

$$A + B = (x + 10)/80 + x/60 = 1$$

$$3x + 30 + 4x = 240$$

$$7x = 210$$

$$X = 30 \text{ days}$$

Quantity I  $<$  Quantity II  $<$  Quantity III

## 17. B

Quantity I:

$$\text{Profit ratio} = 4500 * 12 : 7000 * 12 : 9000 * 12$$

$$= 9 : 14 : 18$$

$$\text{B's Share} = 14/41 * 16400 = \text{Rs. } 5600$$

Quantity II:

$$X * 30/100 * 65/100 = 975$$

$$X = 9750000/30 * 65 = \text{Rs. } 5000$$

Quantity III:

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$$50\% \text{ of } 10000 = ?$$

$$50/100 * 10000 = ?$$

$$5000 = ?$$

Quantity I > Quantity II = Quantity III

**18. A**

Quantity I:

$$3150 = 15000(1 + r/100)^2 - 15000$$

$$3150 = 15000((1 + r/100)^2 - 1)$$

$$18150 = 15000 * (1 + r/100)^2$$

$$121/100 = (1 + r/100)^2$$

$$11/10 = (1 + r/100)$$

$$110 = 100 + r$$

$$\Rightarrow r = 110 - 100 = 10\%$$

Quantity II:

$$22/7 * 7 * 7 = l * 11$$

$$L = 14 \text{ cm}$$

Quantity III:

$$65\% \text{ of } 120 + ?\% \text{ of } 150 = 105$$

$$65/100 * 120 + ?/100 * 150 = 105$$

$$?/2 * 3 = 27$$

$$? = 18$$

Quantity I < Quantity II < Quantity III

**19. A**

Quantity I:

$$\text{Required probability} = 1 - (11C4/15C4)$$

$$= 1 - (11 * 10 * 9 * 8 / 15 * 14 * 13 * 12)$$

$$= 1 - (22/91) = 69/91 = 0.75$$

Quantity II:

$$\text{Required probability} = 6C2/15C2 = 1/7 = 0.143$$

Quantity III:

$$\text{Required probability} = 4C2 * 3C1 / 15C3$$

$$= 18/455 = 0.03$$

**20. C**

Quantity I:

$$\text{LCM of } (15, 30, 20) = 60 \text{ seconds}$$

$$\text{Time} = 1 \text{ minutes}$$

Quantity II:

$$\text{Distance} = 180 \text{ km}$$

$$\text{Car B speed} = 180/4 = 45 \text{ kmph}$$

$$\text{Time taken by car A} = 180/40 = 4.5 \text{ hours}$$

$$\text{Time taken by car B} = 180/50 = 3.6 \text{ hours}$$

$$\text{Difference} = 4.5 - 3.6 = 0.9 \text{ hours}$$

$$= 0.9 * 60 = 54 \text{ minutes}$$

Quantity III:

$$A + B \text{ fill the tank in 2 minutes} = 1/8 + 1/6 = 7/24$$

$$A + B \text{ fill the tank in 6 minutes} = 21/24 = 7/8$$

$$\text{Remaining} = 1/8$$

$$A \text{ will fill the tank in } 1/8 * 8 = 1 \text{ minutes}$$

$$\text{Total time} = 6 + 1 = 7 \text{ minutes.}$$

Quantity I < Quantity II > Quantity III

**Solution (21-35)**

**21. B**

$$x = 180 - (90 + 30)$$

$$= 90 - 30$$

$$= 60^\circ$$

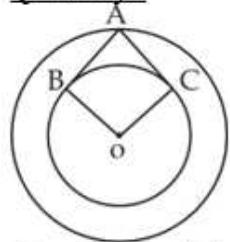
$$y = 180 - (60 + 40)$$

$$= 80^\circ$$

$$\therefore \text{Quantity I} < \text{Quantity II}$$

**22. A**

**Quantity I**



$OB = 8\text{cm}$  and  $OA = 10\text{cm}$

As, AB and AC are tangents on smaller circle

$$\Rightarrow \angle ABO = \angle ACO = 90^\circ$$

$$\Rightarrow AB = \sqrt{10^2 - 8^2} = 6$$

Area of quadrilateral ABOC =  $2 \times \text{Area of triangle ABO}$

$$\text{Area of triangle ABO} = \frac{1}{2} \times OB \times AB = \frac{1}{2} \times 8 \times 6 = 24\text{cm}^2$$

$$\text{Area of quadrilateral ABOC} = 2 \times 24 = 48\text{cm}^2$$

**Quantity II**

Area of trapezium

$$= \frac{1}{2} (\text{sum of parallel sides}) \times \text{perpendicular distance}$$

$$= \frac{1}{2} (6 + 8) \times 6 = 42\text{cm}^2$$

**Quantity I > Quantity II**

**23. C**

$$\angle ABC = 90^\circ \text{ (Semicircle property)}$$

$$\angle CAB + \angle ACB + \angle ABC = 180^\circ$$

$$\angle CAB + \angle ACB = 90^\circ$$

$$\text{As } \angle ACB \leq 45^\circ \text{ So, } \angle CAB \geq 45^\circ$$

$$\angle ACD + \angle CAD + \angle ADC = 180^\circ$$

$$\angle CAD + \angle ADC = 90^\circ$$

$$\text{But } \angle ACB = \angle CAD \text{ (AD || BC)}$$

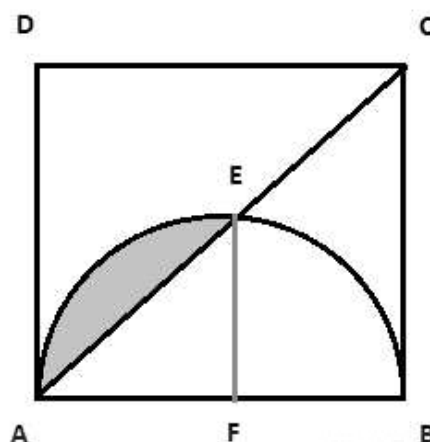
$$\angle ACB + \angle ADC = 90^\circ$$

$$\text{As } \angle ACB \leq 45^\circ \text{ So, } \angle ADC \geq 45^\circ$$

**Quantity I  $\geq$  Quantity II**

**24. B**

Quantity I:



Draw  $EF \parallel BC$

Now, E and F are mid-points of AC and AB respectively.

$$AF = 5\text{ cm}, EF = 5\text{ cm}$$

$$\text{Radius of semi-circle} = 5\text{ cm}$$

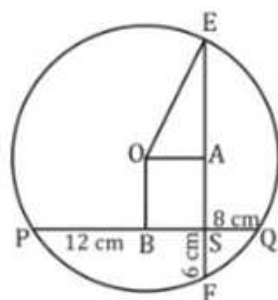
$$\text{Area of shaded region} = \frac{1}{4} \text{ Area of circle} - \text{Area of } \triangle AFE$$

$$= \frac{1}{4} \times \frac{22}{7} \times 5 \times 5 - \frac{1}{2} \times 5 \times 5 \approx 7.14\text{ cm}^2$$

**Quantity II > Quantity I**

**25. A**

**Quantity I:**



As, PQ and EF are two line that intersect at S

$$\text{So, } PS \times SQ = ES \times SF$$

$$12 \times 8 = ES \times 6$$

$$ES = 16 \text{ cm}$$

From center O draw

$$OB \perp PQ \text{ and } OA \perp EF$$

$$\text{So, } PB = PQ = \frac{(12+8)}{2} = 10 \text{ cm}$$

$$BS = OA = 2 \text{ cm}$$

$$EF = 16 + 6 = 22 \text{ cm}$$

$$EA = \frac{22}{2} = 11 \text{ cm}$$

In triangle  $\triangle OAE$

$$OA^2 + EA^2 = OE^2$$

$$2^2 + 11^2 = OE^2$$

$$OE^2 = 125$$

$$OE = \sqrt{125} = 5\sqrt{5} \text{ cm}$$

ATQ

$$FC = \frac{CD}{2} = \frac{16}{2} = 8 \text{ cm}$$

$$AE = \frac{AB}{2} = \frac{12}{2} = 6 \text{ cm}$$

$$EF = 14 \text{ cm}$$

But  $AO = OC = \text{radius of circle}$

$$OA^2 = AE^2 + OE^2 = OC^2 = CF^2 + OF^2$$

Let OE and OF be 'a' and 'b' respectively

$$a^2 - b^2 = 8^2 - 6^2 = 28$$

$$\text{And } a + b = 14$$

$$\text{So, } a = 8, b = 6$$

$$\text{Radius of circle} = \sqrt{6^2 + 8^2} = \sqrt{36 + 64} = \sqrt{100} = 10 \text{ cm}$$

$$\text{Area of circle} = \pi(10)^2 = 314.28 \text{ cm}^2$$

**Quantity I > Quantity II**

**26. A**

$$\text{Quantity 1: } 1 \text{ man's one day's work} = \frac{1}{20 \times 15} = \frac{1}{300}$$

Suppose after n days work is finished.

$$\text{So, } \frac{1}{300} + \frac{2}{300} + \dots + \frac{n}{300} = 1$$

$$\text{or, } 1 + 2 + 3 + \dots + n = 300$$

$$\text{or, } \frac{n(n+1)}{2} = 300$$

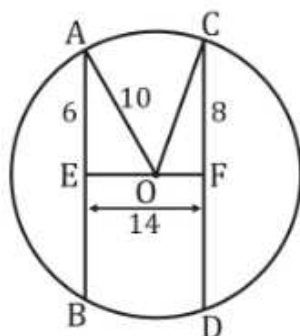
$$\text{or } n^2 + n - 600 = 0$$

$$\text{or, } n^2 + 25n - 24n - 600 = 0$$

$$\text{or, } (n - 24)(n + 25) = 0$$

$$\therefore n = 24, -25 \text{ (neglect negative value)}$$

**Quantity II:**



Let AB and CD are the chord drawn on opposite sides of diameter. Length of CD is 16 cm and length of AB is 12 cm.

Hence the work will be finished in 24 days

Quantity 2: CP of 150 brushes =  $150 \times 250 = \text{Rs. } 37,500$

Total CP =  $37,500 + 2,500 = \text{Rs. } 40,000$

Marked price of 150 brushes =  $150 \times 320 = \text{Rs. } 48,000$

Selling price after discount =  $48000 \times \frac{95}{100} = \text{Rs. } 45,600$

Percentage profit =  $\frac{45,600 - 40,000}{40,000} \times 100 = 14\%$

Quantity 1 > Quantity 2

**27. B**

Quantity 1:  $A : B = 5 : 3 = 10 : 6$

$B : C = 2 : 3 = 6 : 9$

$A : B : C = 10 : 6 : 9$

$\therefore$  Ratio of their investments =  $(10x \times 12) : (6x \times 12) : (9x \times 12)$

=  $20 : 12 : 9$

Required difference =  $\frac{12-9}{41} \times 12300$

= 900 Rs.

Quantity 2:  $P \left[ \left( 1 + \frac{5}{100} \right)^4 - 1 \right] - \frac{P \times 10 \times 2}{100} = 124.05$

or,  $P \left[ \left( \frac{21}{20} \right)^4 - 1 - \frac{1}{5} \right] = 124.05$

or,  $P \left[ \frac{194481}{160000} - \frac{6}{5} \right] = \frac{12405}{100}$

or,  $P = \frac{12405}{100} \times \frac{160000}{2481} = \text{Rs. } 8,000$

Quantity 2 > Quantity 1

**28. B**

Quantity 2: Let the rate of interest =  $r\%$

$$2.25P = P \left( 1 + \frac{r}{100} \right)^2$$

$$1.50 = 1 + \frac{r}{100}$$

$$r = 100 \times 0.5$$

$$r = 50\%$$

Quantity 1: Let, Length of the train =  $l$

$$\therefore \frac{50+l}{14} = \frac{l}{10}$$

$$500 + 10l = 14l$$

$$l = 125 \text{ m}$$

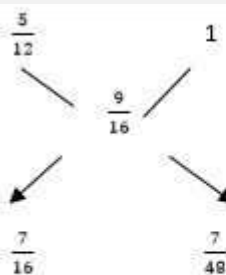
$$\therefore \text{Speed of train} = \frac{125}{10} \text{ m/sec}$$

$$\Rightarrow \frac{125}{10} \times \frac{18}{5} = 45 \text{ km/hr}$$

**29. E**

Water

Water



Remaining 3 : 1

Initial Mixture =  $4 \times 9 \Rightarrow 36 \text{ litre}$

Water =  $\frac{5}{12} \times 36 \Rightarrow 15 \text{ litre}$

Quantity II: Final Quantity =  $63 (1 - 9/63) (1 - 7/63)$

$$= 63 \times 6/7 \times 8/9$$

$$= 48 \text{ litre}$$

$$\text{Water} = 63 - 48$$

$$= 15 \text{ litre.}$$



Hence, Quantity I = Quantity II

**30. A**

Quantity I: Puppies kittens

$$11 \qquad 8$$

$$8 + 3$$

$$55 \times 8 = 440$$

Now,  $500 - 440 = 60$  by 3 puppies

Puppies  $\Rightarrow 20$

Quantity II:

$$460\% = \frac{23}{5}$$

$$336.66\% = \frac{11}{3}$$

$$40\% = \frac{2}{5}$$

$$B + C + D : A$$

$$A + C + D : B$$

$$A + B + D : C$$

$$23 : 5$$

$$11 : 3$$

$$5 : 2$$

$$(23 + 5) \text{ unit} = 56 \quad (11 + 3) = 66 \quad (7 \text{ unit} = 56)$$

$$1 \text{ unit} = 2$$

$$1 \text{ unit} = 4$$

$$1 \text{ unit} = 8$$

$$A's \text{ share} = 2 \times 5 = 10$$

$$B's \text{ share} = 12$$

$$C's \text{ share} = 16$$

$$D = 56 - 10 - 12 - 16 = 18$$

Hence, Quantity I > Quantity II

**31. E**

**Quantity I:**

$$\text{Milk in vessel C} = 2/5 + 5/12 = (24+25)/60 = 49/60$$

$$\text{Water in vessel C} = 3/5 + 7/12 = (36+35)/60 = 71/60$$

$$\text{Milk and Water ratio in vessel C} = 49/60 : 71/60 = 49:71$$

$$\text{Required percentage} = 71/120 \times 100 = 59\%$$

**Quantity II:**

$$\text{Alcohol in tank S} = 1/5 + 3/8 = 20/40$$

$$\text{Water in tank S} = 4/5 + 5/8 = (32+25)/40 = 57/40$$

$$\text{Alcohol and Water in tank S} = 23/40 : 57/40 = 23:57$$

$$\text{Required percentage} = 57/80 \times 100 = 71\%$$

Quantity 1 < Quantity 2

**32. A**

Quantity I:

Let the capacities of vessels A, B and C be  $2x$ ,  $3x$  and  $5x$  liters respectively.

Vessel A is filled with milk and content of vessel A is poured into vessel B

Quantity of milk in vessel B = Capacity of vessel A =  $2x$  liters

Vessel B is filled with water

Quantity of water added in vessel B = Capacity of vessel B – Capacity of vessel A

$$= 3x - 2x = x \text{ liters}$$

Content of vessel B is poured into vessel C

Quantity of milk added in vessel C = Capacity of vessel C – Capacity of vessel B

$$= 5x - 3x = 2x \text{ liters}$$

Final Content of Vessels C:

Water =  $x$  liters

Milk =  $2x + 2x = 4x$  liters

According to the question,

Quantity of milk in vessel C = 45 + Quantity of water in vessel C

$$\Rightarrow 4x = 45 + x$$

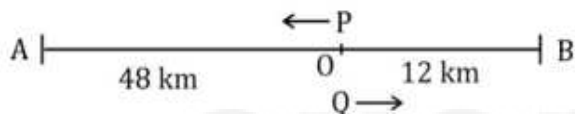
$$\Rightarrow 3x = 45$$

$$\Rightarrow x = 15$$

Capacity of vessel C =  $5x = 75$  liters

Quantity I > Quantity II

33. B



Let P is faster than Q

Then P covers 72 km distance in the same time as Q covers 48 km distance

Ratio of the speed = 72 : 48

$$= 3 : 2$$

$$\therefore \text{Speed of P} = \frac{48}{2} \times 3 = 72 \text{ km/hr}$$

Quantity I  $\rightarrow$  Difference between P and Q =  $72 - 48 = 24$  km/hr.

Let speed of train =  $T$  km/hr

Let speed of car =  $C$  km/hr

$$\therefore \frac{120}{T} + \frac{480}{C} = 8 \dots\dots\dots(i)$$

$$\frac{200}{T} + \frac{400}{C} = 8\frac{1}{3} \dots\dots\dots(ii)$$

On solving (i) and (ii)

$$T = 60 \text{ km/hr}$$

$\therefore$  Quantity I < Quantity II

34. A

Quantity I – Total number of members =  $5 + 7 = 12$

Let  $S$  be the sample space. Then,

$n(S)$  = total number of ways of selecting 6 artistes out of

$$12 = {}^{12}C_6 = \frac{(12 \times 11 \times 10 \times 9 \times 8 \times 7)}{(6 \times 5 \times 4 \times 3 \times 2 \times 1)} = 924$$

Let  $E$  = event of selecting 6 members when none is Dancer.

$$n(E) = {}^7C_6 = 7$$

$$\therefore P(E) \text{ when none of the member is Dancer} = 7/924$$

$$\therefore P(E) \text{ when at least one member is Dancer} = 1 - 7/924 = 917/924 = 131/132$$

Quantity II – Total number of members =  $5 + 7 = 12$

Let  $S$  be the sample space. Then,

$n(S)$  = total number of ways of selecting 6 artistes out of 12  
 $12 = {}^{12}C_6 = (12 \times 11 \times 10 \times 9 \times 8 \times 7) / (6 \times 5 \times 4 \times 3 \times 2 \times 1) = 924$

Let E = event of selecting 6 members having exactly 3 dancers and 3 singers.

$$n(E) = {}^5C_3 \times {}^7C_3 = (7 \times 6 \times 5) / (3 \times 2 \times 1) = 35$$

$\therefore P(E)$  when there are exactly 3 dancers and 3 singers in the group =  $35/924$

$\therefore$  Quantity I > Quantity II.

**35. A**

**Quantity I -**

Total number of balls in bag =  $(5 + 6 + a + b) = (11 + a + b)$   
 ATQ -

$$\frac{a}{(11+a+b)} = \frac{1}{6}$$

$$6a - a - b = 11$$

$$5a - b = 11 \text{----- (i)}$$

$$\text{Also, } \frac{b}{11+a+b} = \frac{2}{9}$$

$$9b = 22 + 2a + 2b$$

$$- 2a + 7b = 22 \text{----- (ii)}$$

From (i) & (ii)

$$a = 3$$

$$b = 4$$

$$\begin{aligned} \text{Required probability} &= \frac{5 \times 3}{18 \times 17} (2!) \\ &= \frac{5}{51} \end{aligned}$$

**Quantity II -**

$$\text{Total dice} = 8 + x + y$$

$$\frac{x}{8+x+y} = \frac{7}{20}$$

$$20x = 56 + 7x + 7y$$

$$13x - 7y = 56 \text{----- (i)}$$

$$\text{Also, } \frac{y}{8+x+y} = \frac{1}{4}$$

$$4y = 8 + x + y$$

$$- x + 3y = 8 \text{----- (ii)}$$

From (i) & (ii) we get

$$y = 5$$

$$x = 7$$

$$\begin{aligned} \text{Required probability} &= 2! \times \frac{8 \times 7}{20 \times 19} \\ &= \frac{28}{95} \end{aligned}$$

**Quantity I > Quantity II**

**Solution (36-50)**

**36. A**

	A	B	C
Time	$x + 5$	$x$	$x - 4$

$$\therefore \frac{1}{x+5} + \frac{1}{x} = \frac{1}{x-4}$$

$$x = 10$$

$\therefore$  **Quantity I**  $\rightarrow$  10 days

$$\text{Given } [2M = 3W]$$

$$\therefore \frac{(8M+14W) \times x \times 7}{\frac{7}{12} \times 360} = \frac{(6M+10W) \times 15 \times 6}{\frac{5}{12} \times 360}$$

$$\begin{aligned} x &= \frac{171}{13} \\ &= 13 \frac{2}{13} \end{aligned}$$

**Quantity II**  $\rightarrow 13 \frac{2}{13}$

$\therefore$  **Quantity I < Quantity II**

**37. E**

Let, total units of work be 48 units

Then,

P does 6 units per day.

Q does 4 units per day.

R does 2 units per day.

3 days' work of P, Q and R working alternately

$$= 6 + 4 + 2 = 12 \text{ units}$$

$$12 \text{ days' work} = 12 \times \frac{12}{3} = 48 \text{ units}$$

No work left after 4 rotations (12 days), so the work will be completed in same number of days (12 days) and doesn't depend on the sequence they work

Quantity I = quantity II

**38. B**

Let the per day efficiencies of a man and a woman be M and W

50% of the work = 25 days' work of 4 men and 6 women

$$= 25 \times (4 \times M + 6 \times W) = 100M + 150W \text{ units}$$

$$\Rightarrow \text{Total work} = 200M + 300W \text{ units} \dots\dots\dots(i)$$

One woman was replaced by one man,

50% of the work = 24 days' work of 5 men and 5 women

$$= 24 \times (5 \times M + 5 \times W) = 120M + 120W \text{ units}$$

$$\Rightarrow \text{Total Work} = 240M + 240W \text{ units} \dots\dots\dots(ii)$$

From equations (i) and (ii),

$$200M + 300W = 240M + 240W$$

$$\Rightarrow 60W = 40M$$

$$\Rightarrow 3W = 2M$$

$$\Rightarrow W = \frac{2M}{3}$$

$$\text{Total Work} = 200M + 300 \times \frac{2M}{3} = 400M$$

Quantity I:

Time taken by 10 men to complete the work

$$= \frac{400M}{10M} = 40 \text{ days}$$

Quantity II:

Time taken by 12 women to complete the work

$$= \frac{400M}{12 \times \frac{2M}{3}} = \frac{400M}{8M} = 50 \text{ days}$$

Quantity II > Quantity I

**39. A**

Quantity 1:

$$\text{Initial quantity of water} = \frac{30}{100} \times 90 = 27 \text{ li}$$

$$\text{And, milk} = 90 - 27 = 63 \text{ li}$$

$$\text{Required percentage} = \frac{63 - 18 \times \frac{7}{10}}{90} \times 100 = 56 \%$$

**Alternate**

$$\therefore \text{Required percentage} = \frac{\frac{70}{100} \times (90 - 18)}{90} \times 100 = 56\%$$

Quantity 2: Let initial quantity of mixture was x li.

$$\therefore \text{quantity of acid} = \frac{20}{100} \times (x + 1)$$

$$= \left(\frac{x+1}{5}\right) \text{ li}$$

Now, again

$$(x + 2) \times \frac{100}{300} = \left(\frac{x + 1}{5} + 1\right)$$

$$\Rightarrow x = 4 \text{ li}$$

$$\therefore \text{original quantity of acid} = \frac{4+1}{5} = 1 \text{ li}$$

$$\therefore \text{Required percentage} = \frac{1}{4} \times 100 = 25\%$$

Quantity 1 > Quantity 2

**40. B**

Quantity I:

Probability of either Virat or Rohit hitting century in a match against New Zealand

$$= 0.2 \times 0.85 + 0.8 \times 0.15$$

$$= 0.17 + 0.12$$

$$= 0.29$$

Quantity II:

Probability of at least one of Virat and Rohit hitting a century in a match against Australia

$$= 0.25 \times 0.8 + 0.75 \times 0.2 + 0.25 \times 0.2$$

$$= 0.2 + 0.15 + 0.05$$

$$= 0.4$$

Quantity II > Quantity I

**41. E**

Ajith's 5 days work = 50%

Bala's 5 days work = 33.33%

Chand's 2 days work =  $16.66\% \times 100 - (50 + 33.33)$

Ratio of contribution of work of Ajith, Bala and Chand

$$= 3 : 2 : 1$$

Ajith's total share = Rs. 3000

Bala's total share = Rs. 2000

Chand's total share = Rs. 1000

Ajith's one day's earning = Rs. 600

Bala's one day's earning = Rs. 400

Chand's one day's earning = Rs. 500

**42. B**

Quantity 1 : Volume of cube left =  $7^3 - \pi \left(\frac{7}{2}\right)^2 \times 7$

$$= 343 - \frac{22}{7} \times \frac{49 \times 7}{4}$$

$$= 343 - 269.5$$

$$= 73.5 \text{ cm}^3$$

Quantity 2 : Surface area of cube left =  $6 \times 7^2 - 2 \times \pi \left(\frac{7}{2}\right)^2 + 2 \times \pi \left(\frac{7}{2}\right) \times 7$

$$= 294 - 77 + 154$$

$$= 371 \text{ cm}^2$$

Quantity 2 > Quantity 1

**43. B**

Let, total units of work be 32 units

Then P does 2 units per day.

& Q does 1 unit per day.

Quantity 1 :

3 units are done in 2 days.

30 units are done in 20 days.

On 21<sup>st</sup> day P does 2 units and work gets completed.

Quantity 2 :

3 units are done in 2 days

30 units are done in 20 days.

On 21<sup>st</sup> day Q does 1 unit work.

P completes the remaining one unit in another  $\frac{1}{2}$  day

$$\text{Total days} = 21 \frac{1}{2}$$

Quantity 2 > quantity 1

**44. A**

Let the marked price be x. Cost price (CP) = 40 %

discount on MP =  $0.6y = 60000 \Rightarrow y = \text{Rs. } 100000$  MP

SP at Show Room "A" = Rs. 60000

SP at Show Room "B" =  $100000 \times 0.75 = 75000$

Difference between Marked Price and SP at Show Room

"A" = 40000

Difference between Marked Price and SP at Show Room

"B" = 25000

**45. C**

In triangle BCE, angle  $y = 180 - (40 + 20) = 120$

Sum of exterior angle of a quadrilateral is 360 degree

So in quadrilateral ABCD;  $50 + y + x + 90 = 360$  [ $y = 120$ ]

$x = 100$  degree

**46. A**

I: ABCD is a parallelogram as opposite sides are parallel.

In a parallelogram the diagonal are divided in equal part at the point of intersection. So  $AC = 2OC = 12$

$BD = 16$  cm

means  $OB = 8$  and  $OA = 6$

in triangle AOB; use Pythagoras theorem to find  $AB = 10$  cm

**47. A**

a is an acute angle means less than  $90^\circ$ . In triangle ABC;

Angle  $BAC + A + 20 = 180$

$\Rightarrow$  Angle  $BAC + A = 160$

As A is less than 90 hence BAC will be greater than 160-

$90 = 70$  and Angle  $x =$  Angle BAC (Angles in the same segment are equal)

Hence  $x > 70$

**48. E**

I: circumference of circle  $c = 2\pi r = 2\pi * 77 = 484$

Circumference of circle  $b = 2\pi * 70 = 440$

Circumference of circle  $a = 2\pi * 63 = 396$

Time taken by A =  $396/8 = 49.5$  s

Time taken by B =  $440/9 = 48.88$  s

Time taken by C =  $484/9.5 = 50.94$  s

So B reaches first and his speed is 9 m/s

**49. E**

**Quantity I -**

Given,  $\pi r^2 = 346.5 \text{ cm}^2$

$$r^2 = 346.5 \times \frac{7}{22}$$

$$r^2 = 110.25$$

$$r = 10.5 \text{ cm}$$

$$\text{Length of rectangle} = 10.5 \times \frac{8}{3} = 28 \text{ cm}$$

$$2\pi r + 2(l + b) = 154$$

$$2 \times \frac{22}{7} \times 10.5 + 2(28 + b) = 154$$

$$66 + 56 + 2b = 154$$

$$2b = 32$$

$$b = 16 \text{ cm}$$

**Quantity II -**

$$r = 132 \times \frac{7}{22 \times 2} = 21 \text{ cm}$$

$$\frac{22}{7} \times 21 \times 21 - a^2 = 1130$$

$$a^2 = 1386 - 1130$$

$$a^2 = 256$$

$$a = 16$$

**Quantity I = Quantity II**

**50. B**

**Quantity I** – Arun : Gopal

$$(P + 1200) 8 + \left(\frac{P+1200}{2}\right) \times 4 : 8(P + 1500) + (2P + 3000) \times 4$$

$$= (10P + 12000) : (16P + 24000)$$

$$= \frac{(10P+12000)}{(16P+24000)} = \frac{4250}{(11250-4250)}$$

$$= \frac{(10P+12000)}{(16P+24000)} = \frac{17}{28}$$

$$= 240P - 272 P = 408000 - 336000$$

$$8P = 72000$$

$$P = 9000$$

$$\begin{aligned}\text{Gopal invested} &= 9000 + 1500 \\ &= \text{Rs. } 10500\end{aligned}$$

$$\text{Three times of amount invested by Gopal} = 10500 \times 3 = \text{Rs. } 31500$$

**Quantity II** – Profit ratio of A : B : C

$$= (27000 \times 4 + 22000 \times 8) : (36000 \times 4 + 42000 \times 8) : (35000 \times 8)$$

$$= 71 : 120 : 70$$

$$\text{C's share of profit} = 130500 \times \frac{70}{261}$$

$$= 500 \times 70$$

$$= 35000 \text{ Rs.}$$

**Quantity I < Quantity II**

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**Direction (1-10):** In the given questions, two quantities are given, one as 'Quantity 1' and another as 'Quantity 2'. You have to determine relationship between two quantities and choose the appropriate option:

- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity II  $\geq$  Quantity I
- d. Quantity II  $\leq$  Quantity I
- e. Quantity I = Quantity II or Relation cannot be established

1. What would be the percentage change in the volume of the box?

**Quantity I** – If the length, breadth and height of a box of cuboid shape is increased by 10%, 25% and 40% respectively.

**Quantity II** – If the length and height of a box of cuboid shape is increased by 55% and 22% respectively but breadth remains the same.

2. Wheels of diameters 7 cm and 14 cm start rolling simultaneously from X and Y, which are 1990.50 cm apart, towards each other in opposite directions. Both of

them make same no. of revolutions per second. Both of them meet after 10s.

**Quantity 1:** speed of smaller wheel.

**Quantity 2:**  $21\pi$  cm/s

3. **Quantity I:** The cash price of a notebook is Rs. 100 but it can also be purchased on 11 monthly equal instalments of Rs. 10 each. Find rate of S.I.?

**Quantity II:** Cost price of 12 articles is equal to selling price of 9 articles while the discount given on 10 articles is equal to the profit earned on 5 articles. Find the difference between profit % and discount %?

4. The length of a passenger train moving at a speed of 45km/h is 250m. The length of a Rajdhani train is 750m which can move at a maximum speed of 135km/h.

**Quantity I:** Time taken by the passenger train to cross a person standing on the platform.

**Quantity II:** Time taken by the passenger train to cross the Rajdhani train coming from opposite direction.

5. **Quantity I:** A student multiplied a number by  $\frac{3}{5}$  instead of  $\frac{5}{3}$ . What is the % error in the calculation?

**Quantity II:** The population of a town is 2,34,000.  $\frac{4}{9}$  of them are males and rest are females. If 30% of males are married and number of married females is 2.5 times



of married males. Find the percent of married females out of total females in the town?

6. 10 women and 12 men complete a certain piece of work in 30 days, if each women takes thrice the time taken by a man to finish the work.

**Quantity I** – How many days will 17 men and 33 women can take to finish the same work?

**Quantity II** – How many days will 26 men and 12 women can take to finish the same work?

7. There are 3 vessels A, B and C full of mixture of milk and water. Vessel A contains 5 liters of water and 25 liters of milk, Vessel B contains 15 liters of water and 30 liters of milk and Vessel C contains water and milk in the ratio 1 : 5. 20%, 40% and 30% of the total mixtures from vessels A, B and C respectively is taken and poured into a fourth vessel. The ratio of milk and water in the fourth vessel is 16 : 5

**Quantity I:** Capacity of vessel C in litres.

**Quantity II:** 80 litres.

8. There are 6 blue pens, 5 black pens and 4 green pens in a bag. Three pens are chosen randomly.

**Quantity I** – The probability of their being 2 blue and 1 green pens.

**Quantity II** – The probability of their being 1 blue, 1 black and 1 green pens

9. **Quantity II:** Product of smallest and second highest number, If the average of 5 consecutive odd numbers is 35.

**Quantity I:** S.I. on the same sum for 4 years at the same rate of interest. The CI on a certain amount for 2 year at the rate of 10% p.a. is Rs.840.

10. **Quantity II:** Cost price to the manufacturer. A manufacturer sells a pair of glasses to a wholesale dealer at a profit of 17%. The wholesaler sells the same to a retailer at a profit of 25%. The retailer in turn sells them to a customer for Rs. 32.76, thereby earning a profit of 40%.

**Quantity I:** Area of the hall if the Material cost of flooring per is Rs. 250 while labor cost of flooring the hall is Rs. 3500 and the total cost of flooring the hall is Rs. 14500.

**Direction (11-20):** In the given questions, two quantities are given, one as 'Quantity 1' and another as 'Quantity 2'. You have to determine relationship between two quantities and choose the appropriate option:

- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity II  $\geq$  Quantity I
- d. Quantity II  $\leq$  Quantity I
- e. Quantity I = Quantity II or Relation cannot be established

11. A bag contains 4 green, 5 red and 7 white balls. Three balls are drawn randomly.

**Quantity I:** What is the probability that all three balls are of white colour?

**Quantity II:** What is the probability that all three balls are of different colour?

**12.Quantity I:** No. of different ways in which the letters of the word 'TOTAL' can be arranged?

**Quantity II:** Perimeter of circle, If the area of a circle is  $616 \text{ cm}^2$

13. A merchant earned a profit of Rs. 75 on the selling price of a sweater that cost the merchant Rs. 450.

**Quantity I:** The profit expressed as a percentage of the cost to the merchant.

**Quantity II:** The profit expressed as a percentage of the selling price.

14. **Quantity- 1:** A metro rail covered a distance of 1235 km in 19 hours. The average speed of a bus is four fifths of the average speed of the metro. What is the distance covered by the bus?

**Quantity-2:** A 320 meter long train crosses a bridge thrice its length in 40 second. What is the distance covered by train in 8 hr?

**15. Quantity I:** The perimeter of a triangle whose sides are 17 cm, 13 cm and 23 cm.

**Quantity II:** The perimeter of a square whose diagonal is 19 cm.

16. What is the rate percent per annum?

**Quantity I:** Sum of money becomes four times in five years at simple interest.

**Quantity II:** The difference between compound interest and simple interest on a sum of Rs. 15,000 at the end of two years is Rs. 9,600

17. What will be the speed in km/hr if the train crosses the platform which is twice its length.

**Quantity I** – A 320 metre long train crosses the platform in 63 seconds.

**Quantity II** – A 335 metre long train crosses the platform in 72 seconds.

**18. Quantity I:** Maximum aggregate marks that a student can get. In an examination it is required to get 65% of the aggregate marks to pass. A student gets 684 marks and is declared failed by 8% marks.

**Quantity II:** No. of different ways in which the letters of the word 'VIRTUAL' will be arranged such that all the vowels come together.

19. A group consists of 4 couples in which each of the 4 persons have one wife

**Quantity I:** Number of ways in which they could be arranged in a straight line such that the men and women occupy alternate positions

**Quantity II:** Eight times the number of ways in which they be seated around circular table such that men and women occupy alternate position.

20. The simple interest accrued on a sum at the rate of 10% p.a. for two years is Rs. 5,000.

**Quantity I** – What will be the compound interest on the same amount at the same rate for 2 years?

**Quantity II** – What will be the compound interest on the same amount at 8% p.a. for 3 years?

**Direction (21-30):** In the given questions, two quantities are given, one as 'Quantity 1' and another as 'Quantity 2'. You have to determine relationship between two quantities and choose the appropriate option:

- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity II  $\geq$  Quantity I
- d. Quantity II  $\leq$  Quantity I
- e. Quantity I = Quantity II or Relation cannot be established

21. Seven HR's and Seven CEO's are to be arranged in a row while seating in a seminar.

**Quantity I** – No. of way to arranged Seven HR's and Seven CEO's such that no two HR's and no Two CEO's adjacent to each other.

**Quantity II** – No. of way to arranged 7 HR's and 7 CEO's such that all CEO's sit together.

**22. Quantity I** – In how many ways letters of MOBILE can be arranged when vowels are always together.

**Quantity II** – In how many ways letters of MONDAY can be arranged when vowels are not together.

23. An urn contains 3 green, 5 blue, 6 black and 4 yellow marbles.

**Quantity I** – If two marbles are picked at random, what is the probability that both are green?

**Quantity II** – If three marbles are picked at random, what is the probability that two are blue and one is yellow?

**24. Quantity I:** There are two types of animals in a pet shop. Some are puppies and some are kittens. Each kitten takes 8 biscuits and each puppy takes 11 biscuits. If 500 biscuits were eaten by 55 animals. Find the number of puppies?

**Quantity II:** A, B, C, D purchased a toffees of Rs. 56 the share of B + C + D is 460% of A and the share of A + C + D is 366.66% of B and the share of C is 40% of A + B + D. Find the share of D.

25. There are two bags A and B. Bag A contains 5 red, 3 green and 4 blue balls while Bag B contains 8 blue, 4 green and 6 red balls.

**Quantity I:** Probability of getting at most 1 red ball if 3 balls are drawn at random from Bag B.

**Quantity II:** Probability of getting at least 2 red balls if 3 balls are drawn at random from Bag A.

**26. Quantity I:** The price of rice is decreased by 30%, by how much % the consumption is increase so that the expenditure will decreased by 10%?

**Quantity II:** A man spends Rs. 45,600 out of his income 68,400. If his income and expenditure are increased by 19% and 13%. Find the percentage change in his savings.

**27. Quantity I:** In how many different ways the letter of the word 'CAMEL' can be arranged, if all vowels come together.

**Quantity II:**  $2:x:x^2 = 2304$

**28. Quantity I:** The cash price of a notebook is Rs. 100 but it can also be purchased on 11 monthly equal instalments of Rs. 10 each. Find rate of S.I.?

**Quantity II:** Cost price of 12 articles is equal to selling price of 9 articles while the discount given on 10 articles is equal to the profit earned on 5 articles. Find the difference between profit % and discount %?

**29. Quantity I:** A and B started a business by Rs. 4500 and Rs. 7500 respectively. A invested only 8 months and they divided their shares after a year. The ratio of profit of A and B is 12: 25. Then, how many months B invested the money?

**Quantity II:** P and Q invested in the ratio of 5: 4. P invested the money for 10 months. The ratio of profit of P and Q is 25: 14. Then, how many months Q invested the money?

**30. Quantity I:** A key chain was sold for Rs. 24 with a profit of 20 %. If it were sold for Rs. 25, then what would have been the percentage of profit?

**Quantity II:** A person bought two books for Rs. 800 each. He sold one at a profit of 25 % and the other at a loss of 15 %. What would be his overall profit or loss in the transaction?

**Direction (31-40):** In the given questions, two quantities are given, one as 'Quantity 1' and another as 'Quantity 2'. You have to determine relationship between two quantities and choose the appropriate option:

a. Quantity I > Quantity II

b. Quantity I < Quantity II

c. Quantity II  $\geq$  Quantity I

d. Quantity II  $\leq$  Quantity I

e. Quantity I = Quantity II or Relation cannot be established

**31. Quantity I:** 4 years ago, the age of father is 3 times the age of the son. After 6 years, the sum of the age of son and father is 80 years. Then find the present age of the father?

**Quantity II:** 8 years ago, the age of the father is 3 times the age of the son. The present age of the father is 2 times of the age of the son after 3 years. Find the present age of the father?

**32.** A bag contains 9 yellow balls, Y green balls and 7 red balls, if one ball is drawn at random from bag probability of it being green is  $\frac{5}{21}$ .

**Quantity I:** The probability that at least one of the fruits is apple when two fruits are taken out from bucket P without replacement. Bucket 'P' contains 2Y apple, 3(Y - 2) banana & 1.5(Y - 1) orange.

**Quantity II:** The probability that both of the dice are of same color, when two dice are taken out from bucket Q without replacement. Bag 'Q' contains 4 red dice, 3.5(Y - 3) green dice and 2Y yellow dice

**33.** A bag contains 4 black, 6 green and 3 yellow balls.

**Quantity I:** If 2 balls are drawn at random, then find the probability of getting at least one yellow balls?

**Quantity II:** If 3 balls are drawn at random, then find the probability of getting a ball of different colours?

**34. Quantity I:** Raji can swim at 6 km/hr in still water. The river flows at 3 km/hr and it takes 8 hours more upstream than downstream for the same distance. How far is the place?

**Quantity II:** A man can row 25 km/hr in still water and the river is running at 15 km/hr. If the man takes 2 hr to row to a place and back, how far is the place?

**35. Quantity I:** Two pipes A and B can fill a tank in 16 minutes and 24 minutes respectively. Both the pipes are opened together and 3 minutes before the tank is filled completely, pipe B is closed. Calculate the total time required to fill the tank?

**Quantity II:** A, B and C can fill the tank in 30, 36 and 42 min respectively. A and C could fill the tank in 5 min and then A and C stopped. Then B started to fill the tank, it fills the tank for some min and again A and C started 10 min before filling the tank. For how long B opened to fill the tank?

**36. Quantity I:** Two trains are moving in opposite directions at 40 km/hr and 60 km/hr. Train lengths are 250 m and 200 m respectively. The time taken by the slower train to cross the faster train is?

**Quantity II:** The length of Mumbai express is 170 m and that of Sathapthi express is 180 m. These two trains are running in the opposite direction with the velocities of 60 km/hr and 80 km/hr respectively. The time taken by them to cross each other is?

**37.Quantity I:** The Circumference of a circular playground is 132 meters. There is a 7 meter wide around the ground. The area of the path is?

**Quantity II:** The length and the breadth of a rectangular plot are in the ratio of 3: 2. If the cost of fencing the plot @ 23 per meter is Rs. 4140, what is the area of the plot?

**38. Quantity I:** Speed of a runner who completes 2 rounds of a circular path which diameter is 98 m in 11 minutes.

**Quantity II:** Speed of a man, who was covering a distance of 24 km and he noticed that after cycling for 1 hour and 40 minutes, the distance covered by him was  $\frac{5}{7}$  of the remaining distance.

**39. Quantity 1:** From a group of 5 male and 6 female, five persons are to be selected to form a committee so that at least 3 female are there in the committee. In how many ways can it be done?

**Quantity 2:** In how many different ways can the letters of the word 'QUANTITATIVE' be arranged in such a way that the vowels always comes together? (Repetition not allowed)

**40. Quantity I:** The price of rice is decreased by 30%, by how much % the consumption is increase so that the expenditure will decreased by 10%?

**Quantity II:** A man spends Rs. 45,600 out of his income 68,400. If his income and expenditure are increased by 19% and 13%. Find the percentage change in his savings.

**Direction (41-50):** In the given questions, two quantities are given, one as 'Quantity 1' and another

as 'Quantity 2'. You have to determine relationship between two quantities and choose the appropriate option:

- a. Quantity I > Quantity II
- b. Quantity I < Quantity II
- c. Quantity II  $\geq$  Quantity I
- d. Quantity II  $\leq$  Quantity I
- e. Quantity I = Quantity II or Relation cannot be established

**41. Quantity I:** In a village 20000 people are living. If 20% of them migrated to another village and 50% of migrated people are unemployed, what is the total number of people who were employed in the migrated people?

**Quantity II:** According to the report of Municipality government population 20% increases every year compared to the previous year. What is the total population in the year 2016, if the population in the year 2018 is 3600?

**42. Quantity I:** 4 years ago, the average age of A, B, C and D was 46 years. With E joining them now, the average age of all the 5 is 45 years. The age of E is?

**Quantity II:** The average age of 10 persons increased by 2 years, When 2 of them whose ages are 20 and 22 years, are replaced by 2 girls. The average age of the girls is?

**43. Quantity I:** A man rows to a place 48 km apart and back in 16 hours. He finds that he can row 6 km downstream and 4 km upstream in the same time. The speed of the stream is?

**Quantity II:** A man can row a boat at a speed of 10 km/hr in still water. He goes to a certain point upstream and back to the starting point in a river. The speed of the flowing water is 4 km/hr. What is the average speed of the boat for that journey?

**44. Quantity I:** The shopkeeper sold an article at 10 % discount on marked price and he gains 20 %. If the marked price of the article is Rs. 450, then the cost price is?

**Quantity II:** The shopkeeper marks the price of the book Rs. 250 and his profit % is 25 %. Find the cost price of the book, if he allows a discount 15 %?

**45. Quantity I:** Harini scored 20% marks and failed by 10 marks, Stenika scored 30% marks and obtained 25 marks more than those required to pass. The pass percentage is.

**Quantity II:** 2 numbers are smaller than a third number by 40% and 45% respectively. How much percent is the second number less than the first.

**46. Quantity I:** If the S.I on a sum of money for 2 years at 10% per annum is Rs. 100, what is the C.I on the same at the same rate and for the same time?

**Quantity II:** What principal will be amount to Rs.48250 at compound interest in 2 years, the rate of interest for 1<sup>st</sup> & 2<sup>nd</sup> year being 6% and 8% respectively?

**47. Quantity- 1:** A committee of members is to be formed out of 4 students, 3 teachers and 2 staffs. In how many different ways can this be done provided the committee comprises 2 students, 2 teachers and 1 staffs?

**Quantity-2:** The number of ways of selecting 5 members from a committee of 9 members?

**48. Quantity I:** Distance, if a man covers a distance in 22 hours, he covers first half at 15 km/hr and 2nd half at 18 km/hr

**Quantity II:** Distance, if a man covers a distance of three equal parts in 20 hours. He covers first part at 10 km/hr, 2nd at 15 km/hr and 3rd at 30 km/hr

**49. Quantity- 1:** If each edge of a cube is increased by 50% then by what amount of % will the volume of the cube increase?

**Quantity-2:** An open box is made of 4 cm thick wood. Its external length is 1.56 m; breadth 1.26m and height 84 cm. Find the cost of painting the inner surface of the box at the rate of 40 paisa per sq m.

**50. Quantity I:** P and Q started a business with initial investment of Rs. 30000 and Rs. 45000 respectively. P invested his capital for 'x' months and Q invested for a whole year. At the end of the year Q's share was Rs. 12500 out of total profit of Rs. 50000; find the value of 'x'?

**Quantity II:** A and B started a business by investing in the ratio of 7: 4. A invested for a whole year. At the end of the year, the share of A and B is 3: 1.

Answer with Detailed Solution

**Solution (1-10)**

**1. A**

Quantity I – For the calculation convenience, let us assume that original length(L) , breadth (B) and height (H) be 10 cm each.

$$\text{Original volume} = 10 \times 10 \times 10 = 1,000 \text{ cm}^3$$

$$\text{New L} = 11, \text{ new B} = 12.5 \text{ and new height} = 14$$

$$\therefore \text{New volume} = 11 \times 12.5 \times 14 = 1,925 \text{ cm}^3$$

$$\text{Increase in volume} = 1,925 - 1,000 = 925 \text{ cm}^3$$

$$\% \text{ increase in volume} = 925/1000 \times 100 = 92.5\%$$

Quantity II – For the calculation convenience, let us assume that original length(L) , breadth (B) and height (H) be 10 cm each.

$$\text{Original volume} = 10 \times 10 \times 10 = 1,000 \text{ cm}^3$$

$$\text{New L} = 15.5, \text{ new B} = 10 \text{ and new height} = 12.2$$

$$\therefore \text{New volume} = 15.5 \times 10 \times 12.2 = 1891 \text{ cm}^3$$

$$\text{Increase in volume} = 1,891 - 1,000 = 891 \text{ cm}^3$$

$$\% \text{ increase in volume} = 891/1000 \times 100 = 89.1\%$$

**2. E**

$$\text{Perimeter of smaller wheel} = 2\pi \cdot \frac{7}{2} = 7\pi \text{ cm}$$

$$\text{Perimeter of larger wheel} = 2\pi \cdot \frac{14}{2} = 14\pi \text{ cm}$$

Let, both take 'x' revolutions per second,

$$\text{Then, } (7\pi + 14\pi)10x = 1990.50 - 10.5$$

$$\text{or, } x = \frac{198}{21\pi} = \frac{198 \times 7}{21 \times 22} = 3$$

$$\text{speed of smaller wheel} = 7\pi \times 3 = 21\pi \text{ cm./s.}$$

$$\text{Quantity I} = \text{Quantity II}$$

**3. B**

Quantity I: Rs. 100

$$[100 + 90 + 80 + 70 + 60 + 50 + 40 + 30 + 20 + 10 + 0] \Rightarrow 550$$



10 × 11 instalment

$$\frac{550 \times r}{100} \times \frac{1}{12} = 10$$

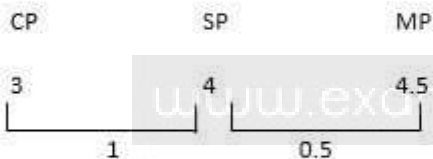
$$\Rightarrow r = 21\frac{9}{11}\%$$

Quantity II: CP × 12 = SP × 9

$$\frac{CP}{SP} = \frac{3}{4} \quad P = \frac{1}{3} \times 100 = 33.33\%$$

10 × Discount = 5 × profit

$$\frac{\text{Discount}}{\text{Profit}} = \frac{1}{2}$$



$$\text{Discount \%} = \frac{0.5}{4.5} \times 100 = 11.11\%$$

$$\therefore \text{Required difference} = 33.33 - 11.11$$

$$= 22.22\%$$

Hence, Quantity I < Quantity II

**4. D**

Quantity I:

$$\text{Time taken to cross the person} = \frac{\text{Length of train}}{\text{Speed of train}}$$

$$= \frac{250}{45 \times \frac{5}{18}}$$

$$= 20 \text{ sec}$$

Quantity II:

Minimum time taken to cross the Rajdhani train

$$= \frac{\text{Sum of lengths of trains}}{\text{Maximum sum of speeds of trains}}$$

$$= \frac{250 + 750}{(45 + 135) \times \frac{5}{18}}$$

$$= 20 \text{ sec}$$

$$\therefore \text{Time} \geq 20 \text{ sec}$$

Quantity II ≥ Quantity I

**5. A**

$$\text{Quantity I: } \frac{2}{5}$$

$$\frac{5}{3}$$

$$\frac{2}{5} \times 15 = 9$$

$$\frac{5}{3} \times 15 = 25$$

16 (difference)

$$\Rightarrow \frac{16}{25} \times 100 = 64\%$$

Quantity II: Number of males =  $\frac{4}{9} \times 2,34,000 = 1,04,000$

Number of females =  $2,34,000 - 1,04,000 = 1,30,000$

Number of married males =  $\frac{30}{100} \times 1,04,000 = 31,200$

Number of married females =  $31,200 \times 2.5 = 78,000$

$\therefore$  Required percent =  $(78000 \times 100) / 130000 = 60\%$

Hence, Quantity I > Quantity II

**6. A**

17 m + 33 women = 17 m + 11 m = 28 men (in Quantity I).



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26 m + 12 women = 26 m + 4 m = 30 men (in Quantity II).

Clearly 30 men will take less days to complete a work than 28 men.

**7. B**

Quantity I:

Let the quantity of water and milk in the vessel

C be x and 5x liters respectively

And, capacity of vessel C be 6x litres.

$$\frac{\text{Quantity of water in fourth vessels}}{\text{Quantity of milk in fourth vessels}} = \frac{5}{16}$$
$$\Rightarrow \frac{20\% \text{ of } 5 + 40\% \text{ of } 15 + 30\% \text{ of } x}{20\% \text{ of } 25 + 40\% \text{ of } 30 + 30\% \text{ of } 5x} = \frac{5}{16}$$
$$\Rightarrow x = 10$$

Capacity of vessel C = 6x = 60 litres

Quantity II > Quantity I

**8. B**

Total number of pens = 6 + 5 + 4 = 15

Three pens are chosen at random.

Then,  $n(S) = {}^{15}C_3 = (15 \times 14 \times 13) / (3 \times 2 \times 1) = 130$

Quantity I.

$n(E) = {}^6C_2 \times {}^4C_1 = 15 \times 4 = 60$

$P(E) = 60/130 = 6/13$

Quantity II.

$n(E) = {}^6C_1 \times {}^5C_1 \times {}^4C_1 = 6 \times 5 \times 4 = 120$

$P(E) = 120/130 = 12/13$

$\therefore$  Quantity I < Quantity II.

**9. A**

Quantity 2: Avg. of 5 odd no. is = 35

Let a = 35

$\therefore$  smallest no. among them = a - 4

= 35 - 4

= 31

Second highest among them = a + 2

= 35 + 2

= 37

$\therefore$  Req'd. answer = 31  $\times$  37 = 1147

Quantity 1: CI for 2 yr = 840

R = Rate of Interest = 10%

$\therefore P \left[ \left( 1 + \frac{10}{100} \right)^2 - 1 \right] = 840$

$\frac{21P}{100} = 840$

P = Rs. 4000

$\therefore$  S.I. for 4 years =  $\frac{4000 \times 10 \times 4}{100} = \text{Rs. } 1600$

Quantity 1 > Quantity 2

**10. A**

Quantity 2: Cost price for retailer =  $32.76 \times \frac{5}{7} = 23.4$

Cost price for manufacturer =  $23.4 \times \frac{100}{125} \times \frac{100}{117}$

= 16

Quantity 1: Let area of hall = x m<sup>2</sup>

$\therefore$  total material cost = 250 x

Labor cost = Rs. 3500

$\therefore 250x + 3500 = \text{Rs. } 14500$

$X = \frac{11000}{250} = 44 \text{ m}^2$

Quantity 1 > Quantity 2

**Solution (11-20)**

**11. B**

Quantity I:

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$$n(s) = {}^{16}C_3 = (16 \times 15 \times 14) / (3 \times 2 \times 1) = 560$$

$$n(E) = {}^7C_3 = (7 \times 6 \times 5) / (3 \times 2 \times 1) = 35$$

$$\therefore P(E) = 35/560 = 35/560 = 1/16$$

Quantity II.

$$n(s) = {}^{16}C_3 = (16 \times 15 \times 14) / (3 \times 2 \times 1) = 560$$

$$n(E) = {}^4C_1 \times {}^5C_1 \times {}^7C_1$$

$$\therefore P(E) = 140/560 = 1/4$$

Hence, Quantity I < Quantity II

**12. B**

$$\text{Quantity 1: Required no. of arrangements} = \frac{5!}{2!} = 60$$

$$\text{Quantity 2: Area of circle} = \pi r^2, \text{ where } r = \text{radius of circle}$$

$$\therefore \pi r^2 = 616$$

$$\Rightarrow \frac{22}{7} \times r^2 = 616$$

$$\Rightarrow r^2 = 196$$

$$\Rightarrow r = 14 \text{ cm}$$

$$\therefore \text{Perimeter} = 2 \times \frac{22}{7} \times 14 = 88 \text{ cm}$$

$$\text{Quantity 2} > \text{Quantity 1}$$

**13. A**

$$\text{Quantity I. \% profit on the cost price} = 75/450 \times 100 =$$

$$1/6 \times 100 = 16\frac{2}{3} \%$$

$$\text{Quantity II. Selling price} = 450 + 75 = 525$$

$$\% \text{ profit on the selling price} = 75/525 \times 100 = 14\frac{2}{7} \%$$

Hence, Quantity I > Quantity II

**14. A**

$$\text{Quantity- 1: Speed of metro} = 1235/19 = 65 \text{ kmph}$$

$$\text{Speed of the bus} = 65 \times \frac{4}{5} = 52 \text{ kmph}$$

$$\text{Distance covered by bus in 19 hour} = 52 \times 19 = 988 \text{ km}$$

$$\text{Quantity-2: Speed of metro} = (320 + 320 \times 3)/40 \times 18/5$$

$$= 1280/40 \times 18/5 = 115.2 \text{ kmph}$$

$$\text{Distance covered by metro} = 115.2 \times 8 = 921.6 \text{ km}$$

Quantity 1 > Quantity 2

**15. B**

$$\text{Quantity I: The perimeter of the triangle} = 17 + 13 + 23$$

$$= 53 \text{ cm}$$

$$\text{Quantity II: Side of the square} = \text{Diagonal}/\sqrt{2}$$

$$= (19\sqrt{2})/\sqrt{2} = 19 \text{ cm}$$

$$\text{The perimeter of the square} = 19 \times 4 = 76 \text{ cm}$$

Hence Quantity I < Quantity II

**16. B**

Quantity I.

$$\text{Rate \%} = (300 \times 100)/(100 \times 5) = 60\%$$

Quantity II.

$$\text{Difference} = Pr^2/100^2$$

$$96 = (15000 \times r^2)/100^2$$

$$r^2 = (9600 \times 100 \times 100)/15000$$

$$r^2 = 6400$$

$$r = 80\%$$

Hence Quantity I < Quantity II

**17. A**

Quantity I:

$$\text{Speed of the train} = (320+640)/63 = 960/63 \times 18/5 =$$

$$54.86 \text{ km/hr.}$$

Quantity II:

$$\text{Speed of the train} = (335+670)/72 = 1005/72 \times 18/5 =$$

$$50.25 \text{ km/hr.}$$

$\therefore$  Quantity I > Quantity II.

18. A

Quantity 1: Let the maximum marks be x.

$$\therefore (65-8) \% \text{ of } x = 684$$

$$\Rightarrow x \times \frac{57}{100} = 684$$

$$\Rightarrow x = \frac{684 \times 100}{57} = 1200$$

Quantity 2: The word VIRTUAL consists of

7 distinct letters in which vowels are A, I, U

$$\therefore \text{Required number of arrangements} = 5! \times 3!$$

$$= 5 \times 4 \times 3 \times 2 \times 1 \times 3 \times 2 \times 1$$

$$= 720$$

Quantity 1 > Quantity 2

19. E

Quantity I:

Let first we arrange all 4 men in 4! Ways then we arrange 4 women in  ${}^4P_4$  ways at 4 places either left of the man or right of the man.

$$= 4! \times {}^4P_4 + 4! \times {}^4P_4 = 2 \times 576$$

$$= 1152$$

Quantity II:

Let first we arrange 4 men in 3! Ways, then 4 women can be arranged in 4 places in  ${}^4P_4$  ways

$$= 3! \times {}^4P_4 = 144$$

$$= 144 \times 8$$

$$= 1152$$

20. B

$$\text{Sum} = (5000 \times 100)/(10 \times 2) = \text{Rs. } 25,000$$

Quantity I:

$$\text{CI} = 25,000(1 + 10/100)^2 - 25,000$$

$$\Rightarrow 25,000 \times 110/100 \times 110/100 - 25,000$$

$$\Rightarrow 30,250 - 25,000 = \text{Rs. } 5,250$$

Quantity II:

$$\text{CI} = 25,000(1 + 8/100)^3 - 25,000$$

$$\Rightarrow 25,000 \times 108/100 \times 108/100 \times 108/100 - 25,000$$

$$\Rightarrow 31,492.8 - 25,000 = \text{Rs. } 6,492.8$$

$\therefore$  Quantity I < Quantity II.

**Solution (21-30)**

21. B

**Quantity I -**

No. of ways arranged 7 HR's and 7 CEO's such that no two HR's and Two CEO's adjacent/

$$= 7! \times 7! \times 2$$

$$= 5040 \times 5040 \times 2$$

**Quantity II -**

No. of ways arranged 7 HR's

And 7 CEO's such that all CEO's sit together

$$= 8! \times 7!$$

$$= 40320 \times 5040$$

So, quantity I < Quantity II

22. B

Quantity I:

$$\text{Required no. of ways} = 3! \times 4! = 6 \times 24 = 144$$

Quantity II.

$$\text{Total no. of ways} = 6! = 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 720$$

$$\text{No. of ways when vowels are always together} = 2! \times 5! = 2 \times 120 = 240$$

$$\text{No. of ways when vowels are not together} = 720 - 240 = 480$$

$\therefore$  Quantity I < Quantity II.

23. B

Quantity I :

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Total no. of marbles in the urn =  $3 + 5 + 6 + 4 = 18$

$$P(S) = {}^{18}C_2 = (18 \times 17) / (2 \times 1) = 153$$

$$P(E) = {}^3C_2 = 3$$

$$\therefore \text{Required probability} = 3/153 = 1/51$$

Quantity II :

Total no. of marbles in the urn =  $3 + 5 + 6 + 4 = 18$

$$P(S) = {}^{18}C_3 = (18 \times 17 \times 16) / (3 \times 2 \times 1) = 816$$

$$P(E) = {}^5C_2 \times {}^4C_1 = (5 \times 4) / 2 \times 4 = 40$$

$$\therefore \text{Required probability} = 40/816 = 5/102$$

$$\therefore \text{Quantity I} < \text{Quantity II.}$$

24. A

Quantity I: Puppies kittens

11 8

8 + 3

$$55 \times 8 = 440$$

Now,  $500 - 440 = 60$  by 3 puppies

Puppies  $\Rightarrow 20$

Quantity II:

$$460\% = \frac{23}{5}$$

$$336.66\% = \frac{11}{8}$$

$$40\% = \frac{2}{5}$$

$$B + C + D : A$$

$$A + C + D : B$$

$$A + B + D : C$$

$$23 : 5$$

$$11 : 3$$

$$5 : 2$$

$$(23 + 5) \text{ unit} = 56 \quad (11 + 3) = 66$$

$$(7 \text{ unit} = 56)$$

$$1 \text{ unit} = 2$$

$$1 \text{ unit} = 4$$

$$1 \text{ unit} = 8$$

$$A's \text{ share} = 2 \times 5 = 10$$

$$B's \text{ share} = 12$$

$$C's \text{ share} = 16$$

$$D = 56 - 10 - 12 - 16 = 18$$

Hence, Quantity I > Quantity II

25. A

Quantity I:

Probability (at most 1 red ball from Bag B)

= Probability (no red ball + 1 red ball)

$$= \frac{{}^{12}C_3 + {}^6C_1 \times {}^{12}C_2}{{}^{18}C_3}$$

$$= \frac{77}{102}$$

Quantity II:

Probability (at least 2 red balls from Bag A)

= Probability (2 red balls + 3 red balls)

$$= \frac{{}^5C_2 \times {}^7C_1 + {}^5C_3}{{}^{12}C_3}$$

$$= \frac{4}{11}$$

Quantity I > Quantity II

26. B

Quantity I: Let expenditure = 100

Price = 70

New expenditure = 90

$$\therefore \text{Required \%} = (90 - 70) / 70 \times 100 = 28 \frac{4}{7} \%$$

$$\text{Quantity II: } \frac{45600}{68400} = \frac{2}{3}$$

Income

Expenditure

Savings

3

2

1

300

200

100

↓ +57

↓ +26

357

-

226

=

131

$$\therefore \text{Required \%} = \frac{131 - 100}{100} \times 100 = 31\%$$

Hence, Quantity I < Quantity II

27. C

Quantity I: Total letter in word CAMEL = 5 (two vowels A, E)

Required no of ways =  $4! \times 2! = 48$

Quantity II:  $x^2 - 2304 = 0$

$X = \pm 48$

So, quantity I  $\geq$  quantity II

**28. B**

Quantity I: Rs. 100

$$[100 + 90 + 80 + 70 + 60 + 50 + 40 + 30 + 20 + 10 + 0] \Rightarrow 550$$



10  $\times$  11 instalment

$$\frac{550 \times r}{100} \times \frac{1}{12} = 10$$

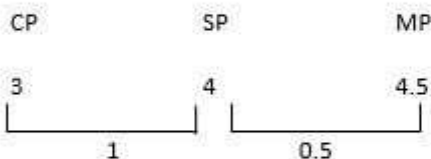
$$\Rightarrow r = 21\frac{9}{11}\%$$

Quantity II:  $CP \times 12 = SP \times 9$

$$\frac{CP}{SP} = \frac{3}{4} \quad P = \frac{1}{3} \times 100 = 33.33\%$$

10  $\times$  Discount = 5  $\times$  profit

$$\frac{\text{Discount}}{\text{Profit}} = \frac{1}{2}$$



$$\text{Discount \%} = \frac{0.5}{4.5} \times 100 = 11.11\%$$

$$\therefore \text{Required difference} = 33.33 - 11.11$$

$$= 22.22\%$$

Hence, Quantity I < Quantity II

**29. A**

According to the question,

$$(4500 \times 8) / (7500 \times x) = (12/25)$$

$$36000 / 7500x = 12/25$$

$$36000 \times 25 = 7500x \times 12$$

$$X = (36000 \times 25) / (7500 \times 12)$$

$$X = 10 \text{ months}$$

Quantity II:

According to the question,

$$(5 \times 10) / (4x) = (25/14)$$

$$50/4x = 25/14$$

$$50 \times 14 = 25 \times 4x$$

$$X = (50 \times 14) / (25 \times 4)$$

$$X = 7 \text{ months}$$

Quantity I > Quantity II

**30. A**

Quantity I:

According to the question,

$$(120/100) \times CP = 24$$

$$CP = 24 \times (5/6) = \text{Rs. } 20$$

$$SP = 25$$

$$\text{Profit \%} = (\text{Profit}/CP) \times 100$$

$$= > (5/20) \times 100$$

$$= > 25 \%$$

Quantity II:

According to the question,

$$CP1 = 800, \text{ Profit} = 25 \%$$

$$SP1 = 800 \times (125/100) = 1000$$

$$CP2 = 800, \text{ Loss} = 15 \%$$

$$SP2 = 800 \times (85/100) = 680$$

$$\text{Total selling price} = \text{S.P1} + \text{S.P2} = 1000 + 680 = 1680$$

$$\text{Total cost price} = 800 + 800 = 1600$$

$$\text{Profit \%} = (80/1600) \times 100 = 5 \%$$

Quantity I > Quantity II

**Solution (31-40)**

**31. B**

Quantity I:

4 years ago, the ratio of age of father and son = 3: 1(3x, x)

After 6 years, Father + son = 80

$$3x + 10 + x + 10 = 80$$

$$4x = 80 - 20$$

$$4x = 60$$

$$X = 15$$

The present age of the father =  $3x + 4 = 45 + 4 = 49$  years

Quantity II:

8 years ago, the ratio of age of father and son = 3: 1(3x, x)

According to the question,

$$(3x + 8) = 2 \times (x + 11)$$

$$3x + 8 = 2x + 22$$

$$X = 14$$

The present age of the father =  $3x + 8 = 42 + 8 = 50$  years

Quantity I < Quantity II

**32. A**

ATQ -

$$\frac{y}{y+9+7} = \frac{5}{21}$$

$$5y + 80 = 21y$$

$$16y = 80$$

$$y = 5$$

**Quantity I -**

Apple = 10

Banana = 9

Orange = 6

Total possible cases of taking out two fruits = 300

Required cases = one apple and one banana or one apple and one orange or two apple

$$\begin{aligned} \text{Required probability} &= \frac{10 \times 9}{300} + \frac{10 \times 6}{300} + \frac{45}{300} \\ &= \frac{90 + 60 + 45}{300} \\ &= \frac{13}{20} \end{aligned}$$

**Quantity II -**

Red dice = 4

Green dice = 7

Yellow dice = 10

Total possible cases of taking out two dice = 210

Required cases = two red or two green or two yellow

$$\begin{aligned} \text{Required probability} &= \frac{6}{210} + \frac{21}{210} + \frac{45}{210} \\ &= \frac{6+21+45}{210} \\ &= \frac{72}{210} \\ &= \frac{12}{35} \end{aligned}$$

**Quantity I > Quantity II**

**33. A**

Quantity I:

Total probability n(S) = 13C2

Required probability = 1 - P(none is yellow)

P(none is yellow) = n(E) = 10C2

P(E) = n(E)/n(S)

$$=> 10C2/13C2$$

$$=> 15/26$$

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Required probability =  $1 - (15/26) = 11/26$

Quantity II:

Total probability  $n(S) = 13C3$

Required probability  $n(E) = 4C1$  and  $6C1$  and  $3C1$

$P(E) = n(E)/n(S)$

$= > (4C1 \text{ and } 6C1 \text{ and } 3C1) / 13C3$

$= > (4 \cdot 6 \cdot 3) / [(13 \cdot 12 \cdot 11) / (1 \cdot 2 \cdot 3)]$

$= > 36/143$

Quantity I > Quantity II

**34. A**

Quantity I:

$x/(6-3) - x/(6+3) = 8$

$x/3 - x/9 = 8$

$2x/9 = 8$

$X = 36 \text{ km}$

Quantity II:

Speed of still water ( $x$ ) = 25 km/hr,

Speed of stream ( $y$ ) = 15 km/hr

$D = t \cdot [(x^2 - y^2)/2x]$

$= 2 \cdot [(25^2 - 15^2)/(2 \cdot 25)]$

$= 2 \cdot (625 - 225)/50$

$2 \cdot (400/50)$

$= > 16 \text{ km}$

Quantity I > Quantity II

**35. A**

Quantity I:

Let total capacity = 48 litres (LCM of 16 and 24)

Let us take tank be filled in  $x$  minutes

$x/16 + (x-3)/24 = 1$

$(3x+2x-6) = 48$

$5x = 48+6 = 54$

$X = 54/5 = 10 \frac{4}{5} \text{ minutes}$

Quantity II:

A and C together can fill the tank in 1 min =  $(1/30) + (1/42) = 2/35$

A and C together can fill the tank in 5 min =  $(2/35) \cdot 5 = 2/7$

A and C together can fill the tank in 10 min =  $4/7$

Part filled in 15 min is,  $(2/7 + 4/7) = 6/7$

Remaining =  $1 - 6/7 = 1/7$

Remaining filled by B in,  $(1/7) \cdot 36 = 36/7 \text{ min}$

$= > 5 \frac{1}{7} \text{ min}$

Quantity I > Quantity II

**36. A**

Quantity I:

$T = D/S$

$T = (250 + 200) / [(40 + 60) \cdot 5/18]$

$T = 450 / (100 \cdot (5/18)) = 16.2 \text{ sec}$

Quantity II:

$T = D/S$

$T = (170 + 180) / [(60 + 80) \cdot (5/18)]$

$T = 350 / (140 \cdot (5/18))$

$T = 9 \text{ sec}$

Quantity I > Quantity II

**37. B**

Quantity I:

The Circumference of a playground is 132 meters.

$= > 2\pi r = 132$

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$$\Rightarrow 2 \times 22/7 \times r = 132$$

$$\Rightarrow r = 21 \text{ m}$$

There is a 7 meter wide around the ground.

$$\text{So, } R = 21 + 7 = 28 \text{ m}$$

The area of the path is,

$$\Rightarrow \pi (R^2 - r^2) = \pi (R + r) (R - r)$$

$$\Rightarrow 22/7 (28 + 21) (28 - 21)$$

$$\Rightarrow (22/7) \times 49 \times 7$$

$$\Rightarrow 1078 \text{ Sq m}$$

Quantity II:

The cost of fencing the plot @ 23 per meter is Rs. 4140

$$\Rightarrow 4140/23 = \text{Perimeter of Rectangle}$$

$$\Rightarrow 180 = 2(3x + 2x)$$

$$\Rightarrow 10x = 180$$

$$\Rightarrow x = 18$$

The length and the breadth of rectangular plot are in the ratio of 8:6

$$\Rightarrow \text{Length} = 3x = 54, \text{ Breadth} = 2x = 36$$

Area of the plot =  $54 \times 36$

$$\Rightarrow 1944 \text{ Sq meter}$$

Quantity I < Quantity II

**38. B**

Quantity I: Distance completed in 1 round = circumference of the path

$$d = 2 \times 22/7 \times 49 = 308 \text{ m}$$

Speed of a runner =  $2 \times 308/11 = 56 \text{ m/min}$  or  $3.36 \text{ km/hr}$

Quantity II: Let d be the remaining distance.

$$\text{So, } d = 5/7 \times (24 - d)$$

$$\Rightarrow 7d = 120 - 5d$$

$$\Rightarrow d = 10 \text{ km}$$

Speed of a man =  $10 \times 3/5 = 6 \text{ km/hr}$

So, Quantity I < Quantity II

**39. B**

Quantity I: Number of ways =  ${}^5C_2 \times {}^6C_3$   
 $+ {}^5C_1 \times {}^6C_4 + {}^5C_0 \times {}^6C_5 / 11C_5 = 281/462 = 281/462$

Quantity II: Number of ways =  $7! / (2! \times 3! \times 2!) = 210$

Quantity I < Quantity II

**40. B**

Quantity I: Let expenditure = 100

Price = 70

New expenditure = 90

$$\therefore \text{Required \%} = (90 - 70)/70 \times 100 = 28 \times 4/7 \%$$

$$\text{Quantity II: } \frac{45600}{68400} = \frac{2}{3}$$

Income	Expenditure	Savings
3	2	1
300	200	100
↓ +57	↓ +26	
357	226	⇒ 131

$$\therefore \text{Required \%} = \frac{131 - 100}{100} \times 100 = 31\%$$

Hence, Quantity I < Quantity II

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**Solution (41-50)**

**41. B**

Quantity I:

Number of employee people in the migrated  
 $= 20000 \times 20/100 \times 50/100 = 2000$

Quantity II:



Number of people in 2018 =  $P(1+R/100)n$

$$3600 = P(1+20/100)^2$$

$$\Rightarrow 3600 \times 5/6 \times 5/6 = P$$

$$P = 2500$$

Quantity I < Quantity II

**42. B**

Quantity I:

4 years ago, Total age of four members (A+B+C+D)

$$= 46 \times 4 = 184$$

$$\text{Present age of 4 members} = 184 + 16 = 200$$

E joining with them, total members are five.

$$\text{Total age} = 45 \times 5 = 225$$

$$\text{The age of E} = 225 - 200 = 25 \text{ years}$$

Quantity II:

The average age of 10 persons increased by 2 years,

$$\Rightarrow \text{Increased age} = 10 \times 2 = 20 \text{ years}$$

When 2 of them whose ages are 20 and 22 years, are replaced by 2 girls

$$\Rightarrow 20 + 22 = 42 \text{ years}$$

$$\text{Girls age} = 42 + 20 = 62 \text{ years}$$

The average age of the girls

$$\Rightarrow 62/2 = 31 \text{ years}$$

Quantity II > Quantity I

**43. B**

Quantity I:

Let the time of downstream and upstream x.

$$\text{Speed of downstream} = 6/x \text{ km/hr}$$

$$\text{Speed of upstream} = 4/x \text{ km/hr}$$

$$48/(6/x) + 48/(4/x) = 16$$

$$\Rightarrow 20x = 16$$

$$\Rightarrow x = 4/5 = 0.8$$

$$\text{Speed of downstream} = 6/x = 6/0.8 = 7.5 \text{ km/hr}$$

$$\text{Speed of upstream} = 4/x = 4/0.8 = 5 \text{ km/hr}$$

The speed of the stream is,

$$= > \frac{1}{2} (7.5 - 5)$$

$$= > 2.5/2 = 1.25 \text{ km/hr}$$

Quantity II:

$$\text{Speed of still water} = 10 \text{ km/hr}$$

$$\text{Speed of the flowing water} = 4 \text{ km/hr}$$

The average speed of the boat for that journey is,

$$\Rightarrow \text{Total Distance} / \text{Time}$$

$$\Rightarrow 2x / (x/(10+4) + (x/(10-4)))$$

$$\Rightarrow 2x / (x/14 + x/6)$$

$$\Rightarrow 84/10$$

$$\Rightarrow 8.4 \text{ km/hr}$$

Quantity II > Quantity

**44. A**

Quantity I:

$$\text{Selling price of the article} = 450 \times (90/100) = \text{Rs. } 405$$

Cost price of the article

$$\Rightarrow \text{CP} \times (120/100) = 405$$

$$\Rightarrow \text{CP} = 405 \times (100/120)$$

$$\Rightarrow \text{CP} = 337.50$$

Quantity II:

$$\text{Selling price of the book} = 250 \times (85/100) = \text{Rs. } 212.50$$

$$\text{Cost price of the book} = 212.50 \times (100/125) = \text{Rs. } 170$$

Quantity I > Quantity II

**45. A**

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Quantity I:

Let total marks = x

Then  $(20\% \text{ of } x) + 10 = (30\% \text{ of } x) - 25$

$(20/100 \cdot x) + 10 = (30/100 \cdot x) - 25$

$(20x/100) + 10 = 30x/100 - 25$

$10x/100 = 35$

$X = 350$

So passing marks =  $(20\% \text{ of } 350) + 10$

$= (20/100 \cdot 350) + 10$

$= 80$

Pass percentage =  $80/350 \cdot 100$

$= 22.8\%$

Quantity II:

Let the 3rd number be x

Then 1st number =  $60\% \text{ of } x$

$= 60/100 \cdot x$

$= 3x/5$

2nd number =  $55\% \text{ of } x$

$= 55/100 \cdot x$

$= 11x/20$

Difference =  $(3x/5 - 11x/20)$

$= 12x - 11x/20$

$= x/20$

Required percentage =  $(x/20 \cdot 5/3x \cdot 100)$

$= 8.33\%$

Quantity I > Quantity II

**46. B**

Quantity I:

$SI = PTR/100$

$P = 100 \cdot SI/TR$

$= 100 \cdot 100/20$

$= 500$

Amount =  $(p \cdot (1 + R/100)^n)$

$= 500(1 + 10/100)^2$

$= 500(110/100)^2$

$= 500(11/10)^2$

$= 500 \cdot 11/10 \cdot 11/10$

$= 60500/100$

$= \text{RS } 605$

$CI = \text{Rs } (605 - 500)$

$= \text{Rs } 105$

Quantity II:

Let Rs.P be the required sum.

$48250 = p(1 + 6/100)(1 + 8/100)$

$48250 = P(106/100)(108/100)$

$48250 = P \cdot 1.06 \cdot 1.08$

$48250 = 1.144P$

$P = 48250/1.144$

$P = \text{Rs } 42147$

Hence the required principal is Rs 42147

Quantity II > Quantity I

**47. B**

Quantity- 1:  $4C2 \cdot 3C2 \cdot 2C1 = 6 \cdot 3 \cdot 2 = 36$

Quantity-2:  $9C5 = 9! / (5! \cdot 4!)$

$= 6 \cdot 7 \cdot 8 \cdot 9 / 1 \cdot 2 \cdot 3 \cdot 4 = 126$

Quantity 1 < Quantity 2

**48. A**

Quantity I:

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$$(2 \times 15 \times 18) / 33 \times 22 = 360 \text{ km}$$

Quantity II:

$$\text{LCM of 10, 15 and 30} = 30$$

Let us take distance covered by each part be 30 km

$$\text{Total time} = 30/10 + 30/15 + 30/30 = 6 \text{ hrs}$$

$$\text{Average speed} = \text{Total distance} / \text{Total speed}$$

$$= (30 + 30 + 30) / 6 = 90 / 6 = 15$$

$$\text{Average speed will become } 15 \text{ km/hr}$$

$$\text{So distance } 15 \times 20 = 300 \text{ km}$$

Quantity I > Quantity II

**49. B**

$$\text{Quantity- 1: Volume} = a^3$$

$$\text{Edge} = 1.5 \text{ cm}$$

$$\text{Volume of new cube} = (1.5a)^3 = 3.375a^3$$

$$\% \text{ increase} = \frac{3.375a^3 - a^3}{a^3} \times 100$$

$$= 237.5\%$$

$$\text{Quantity-2: Internal length} = 156 - 2 \times 4 = 148 \text{ cm}$$

$$\text{Internal breadth} = 126 - 2 \times 4 = 118 \text{ cm}$$

$$\text{Internal height} = 84 - 4 = 80 \text{ cm}$$

$$\text{Internal surface area of the open box} = 148 \times 118 + 2 \times$$

$$(148 + 118) \times 80$$

$$= 17464 + 42560 = 60024 \text{ cm}^2$$

$$\text{Cost of painting} = 40/100 \times 1/100 \times 60024 = \text{Rs. } 240.096$$

Quantity 1 < Quantity 2

**50. B**

$$\text{Quantity I: The share of P and Q} = 12500/37500 =$$

$$1:3 \text{ So, } 30000 \times x / 45000 \times 12 = 1/3 \times 90000x = 540000x =$$

$$540000/90000$$

$$x = 6 \text{ months}$$

Quantity II:

Let B invested for x months,

According to the question,

$$=> (7 \times 12) / (4 \times x) = (3/1)$$

$$=> 21/x = 3/1$$

$$=> x = 7 \text{ months}$$

Quantity II > Quantity I

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1. The sum of three numbers is 98. If the ratio of the first to the second is 2:3 and that of second to the third is 5 : 8 then the second number is?

- a. 20
- b. 30
- c. 38
- d. 48
- e. 52

2. Rs. 73689 are divided between A and B in the ratio 4:7. What is the difference between thrice the share of A and twice the share of B ?

- a. Rs. 36699
- b. Rs. 46893
- c. Rs. 20097
- d. Rs. 26796
- e. Rs. 13398

3. The total number of students in a school is 31700. If the ratio of boys to the girls in the school is 743:842 respectively, what is the total number of girls in the school?

- a. 14860
- b. 16480
- c. 15340

- d. Cannot be determined
- e. None of these

**Direction (4-6):** Study the following information and answer the questions that follow:

A sum of Rs. 10,980 is to be divided amongst A, B and C in the ratio 7:3:5 respectively

4. How much is C's share?

- a. Rs. 3,600
- b. Rs. 3,006
- c. Rs. 3,650
- d. Rs. 3,660
- e. Rs. 3,124

5. What is the sum of B's and C's share?

- a. Rs. 5,685
- b. Rs. 5,865
- c. Rs. 5,897
- d. Rs. 5,873
- e. Rs. 5,856

6. What is the difference between A's and B's shares?

- a. Rs. 2,196
- b. Rs. 2,928
- c. Rs. 2,961
- d. Rs. 2,289

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e.Rs. 2,982

**7. A sum of Rs. 221 is divided among X, Y and Z such that X gets Rs. 52 more than Y. Y gets Rs. 26 more than Z. The ratio of the shares of X, Y and Z respectively is**

- a. 9:5:3
- b. 9:3:5
- c. 5:9:3
- d. 10:6:5
- e. None of these

**8. If 50% of a certain number is equal to  $\frac{3}{4}$ th of the another number, what is the ratio between the number?**

- a. 3:2
- b. 2:5
- c. 5:2
- d. 3:4
- e. None of these

**9. Ratio of the earning of A and B is 4 : 7 respectively. If the earnings of A increase by 50% and the earnings of B decrease by 25%, the new ratio of their earnings becomes 8 :7 respectively. What are A's earnings?**

- a. 26000
- b. 28000
- c. 21000
- d. Data inadequate
- e. None of these

**10. The cost of making an article is divided between materials, labour and overheads in the ratio of 3:4:1. If the material cost Rs. 234, then the labour cost?**

- a. Rs. 176
- b. Rs 312
- c. Rs. 78
- d. Rs. 390
- e. None of these

**11. The ages of Mira, Tina and Sania are in the ratio of 6 : 4 : 7 respectively. If the sum of their ages is 34 years, what is Sania's age?**

- a. 12 yr.
- b. 10 yr.
- c. 18 yr.
- d. 8 yr.
- e. None of these

**12. In a school the number of boys and that of the girls are in the respective ratio of 2:3. If the number of boys is increased by 20% and that of girls is increased by 10%, what will be the new ratio of number of boys to that of the girls?**

- a. 14:5
- b. 5:8
- c. 13:4
- d. Data inadequate
- e. None of these

**13. When x is subtracted from the numbers 9, 15 and 27, the remainders are in continued proportion. What is the value of x?**

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- a. 8
- b. 6
- c. 4
- d. 5
- e. None of these

**14.The price of sugar is increased by 20%. If the expenditure is not allowed to increase, the ratio between the reduction in consumption and the original consumption is?**

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

**15.The ratio between two numbers is 2:3. If each numbers is increased by 4, the ratio between then become 5:7, the difference between numbers.**

- a. 8
- b. 6
- c. 4
- d. 2
- e. None of these

**16.Seats for Mathematics, Physics and Biology in a school are in the ratio 5 : 7 : 8. There is a proposal to increase these seats by 40%, 50% and 75% respectively. What will be the ratio of increased seats?**

- a. 2:3:4
- b. 6:7:8

- c. 6:8:9
- d. Cannot be determined
- e. None of these

**17.The salaries A, B and C are in the ratio 2 : 3 : 5. If their salaries were increased by 15%, 10% and 20% respectively, what will be new respective ratio of their salaries?**

- a. 3:3:10
- b. 23:33:60
- c. 10:11:20
- d. Cannot be determined
- e. None of these

**18.Production of company A is 120% of the production of company B and 80% of the production of company C. What is the ratio between the productions of companies A, B, and C respectively?**

- a. 6:5:9
- b. 6:5:4
- c. 12:10:15
- d. 10:12:15
- e. None of these

**19.The ratio between 2 numbers is 4 : 3 and their L.C.M. is 264. The second number is**

- a. 66
- b. 44
- c. 55
- d. 88
- e. None of these

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**20. Two numbers are respectively 30% and 20% more than a third number. Find the ratio of two numbers.**

- a. 12 : 13
- b. 13 : 12
- c. 3 : 2
- d. 2 : 3
- e. None of the above

**21. What number has to be added to each term of 4 : 7 to make the ratio 5 : 6?**

- a. 13
- b. 12
- c. 10
- d. 11
- e. None of these

**22. If  $a : b = 9 : 5$  and  $b : c = 7 : 4$ , then  $a : b : c = ?$**

- a. 14 : 10 : 17
- b. 35 : 63 : 20
- c. 63 : 35 : 20
- d. 20 : 36 : 63
- e. None of the above

**23. In the 45 litres mixture of milk and water, the ratio of milk and water is 5 : 4. Find the quantity of water required to be added so that the resultant mixture will be in the ratio 4 : 5.**

- a. 7.75 litres
- b. 11.25 litres
- c. 9.25 litres
- d. 12.50 litres
- e. None of these

**24. Two natural numbers are in the ratio of 4 : 7 and their product is 112. Find both the numbers.**

- a. 4 and 7
- b. 8 and 14
- c. 12 and 21
- d. 16 and 28

**25. A starts a business with Rs.3500. After 5 months, B joins with A as his partner. After one year the profit is divided in the ratio 2 : 3. What is B's contribution in capital?**

- a. Rs.8000
- b. Rs.8500
- c. Rs.9000
- d. Rs.7500

**26. The monthly income of A and B is in the ratio of 4 : 3 and their monthly expenditure is in the ratio of 3 : 2. If each of them saves Rs.6000 per month, the income of B is**

- a. 12000
- b. 24000
- c. 18000
- d. 36000

**27. If you are asked to divide Rs. 13950 among three of your friends, such that, 2nd friend should get double of 1st friend and 3rd friend should get Rs. 50 less than the double of 2nd friend's share. How much you'll have to give to your 1st friend?**

- a. Rs. 2010
- b. Rs. 2050

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c. Rs. 1950

d. Rs. 2000

e. None of the above

**28. The fourth proportional to 8, 12 and 16 is :**

a. 24

b. 32

c. 20

d. None of these

**29. Incomes of two companies A and B are in the ratio of 5:8. Had the income of company A been more by Rs.25 lakh, the ratio of their incomes would have been 5:4. What is the income of company B?**

a. Rs.80 lakh

b. Rs.50 lakh

c. Rs.40 lakh

d. Rs.60 lakh

e. None of these

**30. Salaries of A, B and C were in the ratio 3:5:7 respectively. If their salaries were increased by 50%, 60% and 50% respectively, what will be the new ratio of their respective salaries?**

a. 3:6:7

b. 4:5:7

c. 4:5:8

d. Data inadequate

e. None of these

**31. Rs. 558 is divided among three brothers Sanju, Birju, Makhon such that 12 times Sanju's share is**

**equal to 6 times Birju's share which is equal to 8 times Makhon's share. How much Sanju got?**

a. 124

b. 248

c. 224

d. 186

e. None of these

**32. Salaries of Rajesh and Sunil are in the ratio of 2:3.**

**If the salary of each one is increased by Rs.4000 the new ratio becomes 40:57. What is the Sunil's present salary?**

a. Rs.17000

b. Rs.20000

c. Rs.25500

d. Cannot be determined

e. None of these

**33. In the squadron of Indian Air Force the ratio of Sukhoi is to Mig and Jaguar together is 5:7 and the ratio of Jaguar is to Sukhoi and Mig together is 1:2.**

**Find the ratio of Sukhoi and Mig?**

a. 2:7

b. 3:5

c. 3:1

d. 5:3

e. None of these

**34. The no. of pens in three different pencil boxes in the ratio of 1:2:3. Find the ratio in which the number of pens in the first and the second boxes must be increased so that the new ratio becomes 3:2:1.**



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

**35.**The sum of three numbers is 98. If the ratio between the first and second be 2:3 and that between the second and the third be 5:8, then find the second number.

- a. 42
- b. 50
- c. 35
- d. 30

**36.**A man spends his two months' income in three months' time, if his monthly income is Rs. 6000, then his annual saving is:

- a. 18000
- b. 24000
- c. 12000
- d. 36000

**37.**The sum of  $\frac{1}{5}$ th of the number and 25% of another number is equal to 40% of the first number. What is the ratio of the first number and the second number?

- a. 4 : 3
- b. 5 : 2
- c. 5 : 4
- d. 6 : 5

**38.**A bucket contains a mixture of two liquids A & B in the proportion 5 : 3. If 16 litres of the mixture is replaced by 16 litres of liquid B, then the ratio of the two liquids becomes 3 : 5. How much of the liquid B was there in the bucket?

- a. 16.5 l
- b. 18 l
- c. 14.5 l
- d. 15 l
- e. None of these

**39.**In a college the number of students studying Arts, Commerce and Science are in the ratio of 3 : 5 : 8 respectively. If the number of students studying Arts, Commerce and Science is increased by 20%, 40% and 25 % respectively, what will be the new ratio of students in Arts, Commerce and Science respectively?

- a. 4:8:5
- b. 3:10:10
- c. 4:18:5
- d. 32:35:25
- e. None of these

**40.**The students in three classes are in the ratio 4 : 6 : 9. If 12 students are increased in each class, the ratio changes to 7 : 9 : 12. Then the total number of students in the three classes before the increase is?

- a. 95
- b. 76
- c. 100
- d. 114

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e. None of these

**41. Some apples are to be distributed among some boys. If two more apples are available, each boy gets six apples. If five less apples are available, each boy gets five apples. How many apples are available?**

a. 30

b. 40

c. 45

d. 50

e. None of these

**42. Reena and Shaloo are partners in a business. Reena invests Rs. 35,000 for 8 months and shaloo invests Rs.42,000 for 10 months. Out of a profit of Rs.31,570. Reena's share is**

a. Rs.9471

b. Rs.12,628

c. Rs.18,040

d. Rs.18,942

e. None of these

**43. A and B enter into a partnership and invested Rs. 1400 and Rs. 1800 respectively. If they split half of the profit equally for their efforts and the remaining balance in the ratio of their investments and B got Rs. 47 more than A. what was the profit made by the company?**

a. Rs. 376

b. Rs. 652

c. Rs. 752

d. Rs. 954

e. Rs. 854

**44. A starts a business with Rs.3500 and after 5 months, B joins with A as his partner. After a year, the profit is divided in the ratio 2 : 3. What is B's contribution in the capital?**

a. Rs.7500

b. Rs.8000

c. Rs.8500

d. Rs.9000

e. None of these

**45. A started a business with capital of Rs. 20000 Four months later B joined as a partner with a capital of Rs. 10000. What is the share of A out of total profit of Rs. 4000 at the end of the year.**

a. Rs. 5000

b. Rs. 1200

c. Rs. 3000

d. Rs. 1800

e. Rs. 2850

**46. Three partners started a business with Rs. 80000. At the end of the year, they receive Rs. 1800, Rs.3000 and Rs.4800 as profit. Find the investment of the second person.**

a. Rs. 27000

b. Rs. 40000

c. Rs. 15000

d. Rs. 32000

e. None of these

47.M and N start a business with Rs. 5000 and Rs. 7000 respectively. After 4 months O joins the business with Rs. 9000. At the end of the year, O gets Rs. 1800 as his share of profit then find the difference between profit got by N and M?

- a.Rs. 600
- b.Rs. 300
- c.Rs. 1200
- d.Rs. 1500
- e.Rs. 1250

48.A and B started a joint business. Investment of A was six times than that of B and tenure of investment by A was also four times that of B. If B got a profit of Rs. 8000 then, the total profit was?

- a.Rs. 240000
- b.Rs. 160000
- c.Rs. 200000
- d.Rs. 280000
- e.Rs. 245000

49.A and B established a firm together. A's investment was thrice that of B's. A also kept the investment for twice as much time as B. If B got a profit of 4000, what was the total profit?

- a.30,000
- b.28,000
- c.40,000
- d.45,000

50.Riya and sima invested in a partnership business. Riya invests Rs. 70,000 for 8months and sima invests

Rs. 84,000 for 10 months. Out of a profit of Rs. 63140, Riya's share is:

- a. Rs 25000
- b. Rs 25256
- c. Rs 24500
- d. Rs 25270
- e. None of these

Answer with Solution

**Solution (1-50)**

**1. B**

$$\begin{aligned} a : b &= 6 : 2 \\ 2 : 3 &= 5 : 8 \\ a : b : c &\Rightarrow 2 \times 5 : 5 \times 3 : 8 \times 3 \\ a : b : c &= 10 : 15 : 24 \\ a + b + c &= 98 \\ 49k &= 98 \\ \therefore k &= 2 \Rightarrow b = 15 \times 2 = 30 \end{aligned}$$

**2. E**

$$\begin{aligned} &2 \text{ X share of B} - 3 \text{ X share of A.} \\ &= 2 \text{ X } 7/11 - 3 \text{ X } 4/11 \\ &= 14/11 - 12/11 = 2/11 \\ &\Rightarrow 2/11 * 73689 = 6699 \text{ X } 2 = 13398. \end{aligned}$$

**3. E**

$$\begin{aligned} \text{Boys : Girls} &= 743 : 842 \\ \text{Total number of students} &= 31700 \\ \text{Number of girls} &= [842 / (743 + 842)] \times 31700 = (842 / 1585) \times 31700 \\ &= 16840 \end{aligned}$$

**4. D**

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$$C's \text{ share} = (5/15) \times 10980 = \text{Rs. } 3660$$

**5. E**

$$(B + C)'s \text{ share} = [(3+5)/15] \times 10980 \\ = (8/15) \times 10980 = \text{Rs. } 5856$$

**6. B**

$$\text{Required difference} = \text{Rs. } [(7-3)/15] \times 10980 = \text{Rs. } 2928$$

**7. A**

221 is divided among X, Y and Z.

$$Y \text{ gets Rs. } (Z + 26)$$

$$X \text{ gets Rs. } (Z + 26 + 52) = \text{Rs. } (Z + 78)$$

According to the question

$$Z + 78 + Z + 26 + Z = 221$$

$$\Rightarrow 3Z + 104 = 221$$

$$\Rightarrow Z = 117/3$$

$$\Rightarrow Z = 39$$

$$X = 39 + 78 = 117$$

$$Y = 39 + 26 = 65$$

$$Z = 39$$

$$117 : 65 : 39 = 9 : 5 : 3$$

**8. A**

Let the one number be x and another number y

$$\text{Then, } 50\% \text{ of } x = 3y/4$$

$$\Rightarrow 50 * x/100 = 3y/4$$

$$\Rightarrow x/y = 3/2 = 3:2$$

**9. D**

Let the original earnings of A and B be Rs. 4x and Rs. 7x.

$$\text{New earnings of A} = 150\% \text{ of Rs. } 4x = (150/100 * 4x) = \text{Rs. } 6x$$

$$\text{New earnings of B} = 75\% \text{ of Rs. } 7x = (75/100 * 7x) = \text{Rs. } 21x/4$$

$$6x : 21x/4 = 8:7$$

This does not give x. So, the given data is inadequate.

**10. B**

Cost of making is divided among material :labour :

$$\text{overheads} = 3:4:1$$

$$\text{Total material cost} = \text{Rs. } 234$$

$$3x = 234$$

$$\Rightarrow x = 78$$

$$\Rightarrow \text{Labor cost} = 4 * 78 = \text{Rs. } 312$$

**11. E**

$$\text{Ratio of the ages of Mira, Tina and Sania} = 6:4:7$$

$$\text{Let their age be } 6x:4x:7x$$

According to the question,

$$6x + 4x + 7x = 34$$

$$\Rightarrow 17x = 34$$

$$\Rightarrow x = 2$$

$$\text{Sania age} = 7x = 7 * 2 = 14 \text{ yr.}$$

**12. E**

$$\text{Ratio of boys and girls in the school} = 2:3$$

$$\text{New, increased value} = 2 * 120/100 : 3 * 110/100 = 240 : 330$$

$$\Rightarrow 24 : 33 = 8:11$$

**13. E**

From the given question:

$$(9 - x)/(15 - x) = (15 - x)/(27 - x)$$

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$$\Rightarrow (15 - x)^2 = (9 - x)(27 - x)$$

$$\Rightarrow 225 - 30x + x^2 = 243 + x^2 - 36x$$

$$\Rightarrow 6x = 18$$

$$\Rightarrow x = 3$$

**14. C**

Let the price of sugar was Rs.  $x$  per kg.

After increase in price, new price per kg =  $x + x * 20/100$

$$= 6x/5$$

For Rs.  $6x/5$  we get 1 kg. Of sugar

For Rs. 1 we get  $5/6x$  kg. Of sugar

For Rs.  $x$  we get  $5/6$  kg. Of sugar

Decrease in consumption of sugar =  $1 - 5/6 = 1/6$

So, the required ratio =  $1/6 : 1 = 1/6$

**15. A**

Ratio between two numbers = 2:3

Let  $x$  is the common factor between the ratio

$$(2x + 4)/(3x + 4) = 5/7$$

$$\Rightarrow 14x + 28 = 15x + 20$$

$$\Rightarrow x = 8$$

$$\Rightarrow \text{Required difference} = (3x - 2x) = 8$$

**16. A**

let the number of seats for Mathematics, Physics and Biology be  $5x$ ,  $7x$  and  $8x$  respectively.

Number of increased seats are (140% of  $5x$ ), (150% of  $7x$ ) and (175% of  $8x$ ).

$$\Rightarrow (140/100) * 5x : (150/100) * 7x : (175/100) * 8x$$

$$\Rightarrow \text{The required ratio} = 7x : 21x/2 : 14x$$

$$\Rightarrow 14x : 21x : 28x$$

$$\Rightarrow 2 : 3 : 4$$

**17. B**

Ratio of salaries of A, B and C = 2:3:5

Ratio after increasing in the value

$$= 2 * 115/100 : 3 * 110/100 : 5 * 120/100$$

$$= 230 : 330 : 600$$

$$= 23 : 33 : 60$$

**18. C**

Let the production of company B be  $x$  and that of company C be  $y$

Production of company A is 120% of B = 120% of  $x = 6x/5$

Production of company A is 80% of C = 80% of  $y = 4y/5$

$$\Rightarrow 6x/5 = 4y/5$$

$$\Rightarrow y = 3x/2$$

$$\text{Required ratio} = 6x/5 : x : y = 6x/5 : x : 3x/2 = 12 : 10 : 15$$

**19. A**

Let the numbers be  $4x$  and  $3x$

Their L.C.M. is  $12x$

And it is given as L.C.M. = 264.

$$\text{Therefore, } 12x = 264$$

$$\text{Which gives, } x = 22$$

Therefore, the 2nd number becomes,

$$3x = 3 * 22$$

$$= 66$$

**20. B**

Let the 3rd number be  $x$

As per statement,

$$1\text{st number} = (130/100) * x$$

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$$\text{2nd number} = (120/100) * x$$

$$\text{Their ratio} = [(130/100) * x] : [(120/100) * x]$$

$$= 13 : 12$$

**21. D**

Let the number to be added be x

As per statement,

$$(4 + x) / (7 + x) = 5/6$$

Cross multiplying, we get

$$24 + 6x = 35 + 5x$$

$$6x - 5x = 35 - 24$$

$$x = 11$$

**22. C**

$$a : b = 9 : 5 \text{ and } b : c = 7 : 4$$

In order to combine these ratios into a proportion,

We need to have value of b as same in both the ratios

L.C.M. of 5 and 7 is 35,

So, multiplying 1st ratio by 7, we get

$$a : b = 63 : 35$$

And multiplying 2nd ratio by 5, we get

$$b : c = 35 : 20$$

$$\text{Therefore, } a : b : c = 63 : 35 : 20.$$

**23. B**

The ratio of milk and water is 5 : 4, The total quantity is 45 litres.

$$9's = 45 \Rightarrow 1's = 5$$

So Milk=25, Water=20

$$25/(20+x)=4/5 \quad (\text{Here } x \text{ is the quantity of water to be added})$$

$$\Rightarrow x = 11.25 \text{ litres}$$

Formula Method:

Quantity of water required to be added

$$X(ad - bc)/c(a+b) = 45(5 \times 5 - 4 \times 4)/4(5+4)$$

$$= 45 \times 9/4 \times 9 = 11.25 \text{ Litres}$$

**24. B**

Let, Natural numbers are 4x and 7x, then

$$4x * 7x = 112$$

$$28x^2 = 112$$

$$x^2 = 4$$

$$\Rightarrow x = 2$$

$$\Rightarrow \text{Numbers are 8 and 14}$$

**25. C**

Let B invested Rs. x

$$\text{Therefore, Ratio of their investment} = 12 * 3500 : x * 7$$

Since, the profit is divided in the ratio = 2 : 3

$$\text{Therefore, } (12 * 3500) / 7x = 2 / 3$$

$$\Rightarrow B's \text{ contribution} = x = \text{Rs.}9000$$

**26. C**

Let Monthly income of A = 4x

And, Monthly income of B = 3x

Also, Monthly expenditure of A = 3y

And, Monthly expenditure of B = 2y

Since the both save Rs.6000 each per month,

$$\text{Therefore, } 4x - 3y = 6000$$

$$\text{Also, } 3x - 2y = 6000$$

By solving the equations, we get,

$$x = 6000 \text{ and } y = 6000$$

$$\Rightarrow \text{Monthly income of B} = 3x = 3 * 6000 = \text{Rs.}18000$$

**27. D**

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Let the ratio be  $x : 2x : 4x - 50$

$$x + 2x + 4x - 50 = 13950$$

$\Rightarrow x = \text{Rs. } 2000 = \text{share of 1st friend}$

**28. A**

Let the 4th proportional be  $x$

Then,  $8/12 = 16/x$  Solving the given equation  $\Rightarrow x = 24$

**29. C**

Let the incomes be  $5x$  and  $8x$

$$\text{And, } (5x+25)/8x = 5/4$$

$$20x+100 = 40x$$

$$X = 5$$

Income of company B =  $8x = \text{Rs. } 40 \text{ lakh}$

**30. E**

Let the salaries of A, B, C be 300k, 500k and 700k respectively.

After increment salary of A =  $300k + 50\% \text{ of } 300k = 450k$

$$B = 500k + 60\% \text{ of } 500k = 800k$$

$$C = 700k + 50\% \text{ of } 700k = 1050k$$

Hence the new ratio is =  $450k : 800k : 1050k = 9:16:21$

**31. A**

Solution: 12 Sanju = 6 Birju = 8 Makhon ( LCM = 24)

So, Sanju= 2 , Birju= 4, Makhon = 3

Sanju: Birju: Makhon =  $2:4:3$

Therefore, Sanju's share is  $2/9 * 558 = 124$ .

**32. E**

Let the salaries of Rajesh and Sunil be  $2x$  and  $3x$  respectively, then

$$(2x+4000)/(3x+4000) = 40/57$$

$$114x + 228000 = 120x + 160000$$

$$6x = \text{Rs. } 68000$$

$$3x = \text{Rs. } 34000$$

**33. D**

$$S : (M+J) = 5:7$$

$$\Rightarrow 7S = 5M + 5J \dots (1)$$

$$J:(S+M) = 1:2$$

$$\Rightarrow 2J = S+M \dots (2)$$

By solving 1 and 2

$$S:M:J = 5:3:4$$

$$\text{So, } S:M = 5:3$$

**34. B**

let the no. of pens in 1st, 2nd and 3rd pencil box be  $x$ ,  $2x$  and  $3x$  respectively and let the required no. be  $3y$ ,  $2y$  and  $y$ .

The quantity of pens in the third pencil box would remain the same, hence

$$3x=y \text{ or } x=(y/3)$$

Quantity of pens in the boxes originally is  $x$ ,  $2x$  and  $3x$

When  $x=(y/3)$ , hence quantity is  $x=(y/3)$ ,  $2x=(2y/3)$ ,

$$3x=y$$

$$\text{i.e } (y/3), (2y/3), y$$

The required number of pens is  $3y$ ,  $2y$  and  $y$  in

$$\text{Increase in 1st box} = 3y - (y/3) = (8/3)y$$

$$\text{Increase in 2nd box} = 2y - (2y/3) = (4/3)y$$

$$\text{Ratio of increase} = (8y/3) : (4y/3) = 2:1$$

**35. D**

Let three numbers be A, B and C

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$$A : B = 2 : 3$$

$$B : C = 5 : 8$$

$$A : B : C = 10 : 15 : 24$$

$$\text{And } A+B+C = 98$$

$$\text{The second number is} = 98 / (10 + 15 + 24) = 30$$

**36. B**

If he spends two months income in three months it means he saves third month income in three month

He saves 6000 in every three months. So in 1 year he saves  $6000 \times 4 = \text{Rs. } 24000$

**37. C**

Let the numbers be  $100A$  and  $100B$  then,

$$20A + 25B = 40A$$

$$25B = 20A$$

$$A/B = 5/4$$

$$100A : 100B$$

$$500 : 400$$

**38. D**

Let bucket contains  $5x$  and  $3x$  of liquids A and B respectively.

When 16 litres of mixture is replaced, A and B has a mixture is

$$[5x - (5/8) \times 16] = (5x - 10)$$

$$[3x - (3/8) \times 16] = (3x - 6)$$

$$\text{Ratio } (5x - 10)/(3x - 6 + 16) = 3/5$$

$$(5x - 10)/(3x + 10) = 3/5$$

$$X=5.$$

So, quantity of liquid B initially, 15

**39. E**

Let the number of students in Arts, Commerce and Science be  $3x$ ,  $5x$  and  $8x$  respectively.

After, increasing their respective numbers,

Required ratio is

$$\Rightarrow 3x \times 120/100 : 5x \times 140/100 : 8x \times 125/100$$

$$= 360 : 700 : 1000$$

$$= 18 : 35 : 50$$

**40. B**

Let the original number of students be  $4x$ ,  $6x$  and  $9x$ .

Now, according to the question,

$$(4x + 12)/(6x + 12) = 7/9$$

$$\Rightarrow 42x + 84 = 36x + 108$$

$$\Rightarrow 42x - 36x = 108 - 84$$

$$\Rightarrow 6x = 24$$

$$\Rightarrow x = 4$$

$$\therefore \text{Required number of students} = 4x + 6x + 9x = 19x = 19 \times 4 = 76$$

**41. B**

Solution: suppose no. of apples =  $x$

$$\text{So, no. of students} - (x+2)/6 = (x-5)/5; \Rightarrow x=40$$

**42. B**

$$\text{Ratio of their shares} = (35000 \times 8) : (42000 \times 10)$$

$$= 2 : 3$$

$$\text{Reena's share} = \text{Rs. } (31570 \times 2/5) = \text{Rs. } 12628.$$

**43. C**



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Ratio of investment of A and B is 7: 9

Total profit = K

$$\frac{9}{16} \times \frac{K}{2} - \frac{7K}{16 \times 2} = 47$$

$$2K = 47 \times 16 \times 2$$

$$K = \text{Rs. } 752$$

**44. D**

Let B's capital be Rs.x.

$$\text{Then, } 3500 \times 12 / 7x = 2/3$$

$$3500 \times 12 \times 3 = 2 \times 7x$$

$$\Rightarrow 14x = 126000$$

$$x = 9000$$

**45. C**

$$\text{Investment of A} = 20000 \times 12$$

$$\text{Investment of B} = 10000 \times 8$$

$$\text{So, the ratio is } 12 \times 20000 : 8 \times 10000$$

$$= 3 : 1$$

$$\text{Profit of A} = \frac{3}{4} \times 4000 = \text{Rs. } 3000$$

**46. E**

The ratio of profit of the three persons = 1800 : 3000 :

$$4800 = 3 : 5 : 8$$

$$\text{Investment of the second person} = (5/16) \times 80000 = \text{Rs.}$$

$$25000$$

**47. A**

$$\text{Investment of M} = 5000 \times 12$$

$$\text{Investment of N} = 7000 \times 12$$

$$\text{Investment of O} = 9000 \times 8$$

So, the ratio is 5: 7: 6

$$\Rightarrow \frac{6}{18} \times x = 1800 \Rightarrow x = 5400$$

So, difference of profit of M and N is

$$\frac{2}{18} \times 5400 = \text{Rs. } 600$$

**48. C**

Ratio of Investment of A and B = 6: 1

And ratio of time taken by A and B = 4: 1

$$\text{So, ratio of profit of A and B} = 6 \times 4 : 1 \times 1 = 24 : 1$$

$$\text{So, total profit} = 25x = 25 \times 8000 = \text{Rs. } 200000$$

**49. B**

Let B's investment = X then A's investment = 3X

let's time for B = t then, A's time = 2t

A:B

$$3X \times 2t : X \times t$$

$$6:1$$

$$\text{B's share} = 1/7 \times \text{total} = 4000$$

$$\text{Total} = 28,000$$

**50. B**

$$\text{Ratio of their shares} = (70000 \times 8) : (84000 \times 10) = 2 : 3.$$

$$\text{Reena's share} = \text{Rs. } 63140 \times 2/5 = \text{Rs. } 25256$$

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1. The ratio between the three angles of a quadrilateral is 1: 4 : 5 respectively. The value of the fourth angle of the quadrilateral is 60. What is the difference between the value of the largest and the smallest angles of the quadrilateral?

- a. 1200
- b. 900
- c. 1100
- d. 1000
- e. None of these

2. Mr. Pandit owned 950 gold coins all of which he distributed amongst his three daughters Lalita, Amita and Neeta. Lalita gave 25 gold coins to her husband, Amita donated 15 gold coins and Neeta made jewellery out of 30 gold coins. The new respective ratio of the coins left with them was 20 : 73 : 83. How many gold coins did Amita receive from Mr. Pandit?

- a. 380
- b. 415
- c. 400
- d. 350
- e. None of these

3. The angle of quadrilateral are in ratio of 3: 5: 9: 7. The second largest angle of the quadrilateral is equal to the largest angle of a triangle. One of the angles of the triangle is 250. What is the value of second largest angle of the triangle?

- a. 600
- b. 500
- c. 400
- d. 200
- e. None of these

4. One rupee coins, 50paise coins and 25paise coins, whose numbers are proportional to 3,  $3\frac{1}{2}$  and 4 are together worth Rs.161. Find the number of 25paise coin.

- a. 132
- b. 98
- c. 112
- d. 102
- e. None of these

5. In 3 cans, each having capacity of 20 L, mixture of milk and water is filled. The ratios of milk and water in 3 cans respectively are 3:2, 5:2 and 1:3. If all the 3

cans are emptied into a single larger can, then, find the proportion of milk and water in the larger can.

- a. 218/201
- b. 219/199
- c. 201/199
- d. 217/201
- e. None of these

6. Rohit has some 50 paisa coins, some Rs.2 coins, some Rs.1 coins and some Rs.5 coins. The value of all the coins is Rs. 50. Number of Rs.2 coins is 5 more than the Rs.5 coins. 50 paisa coins are double in number than Rs.1 coin. Value of 50 paisa coins and Rs.1 coins is Rs. 26. How many Rs.2 coins does he have?

- a. 4
- b. 2
- c. 7
- d. Cannot be determined
- e. None of these

7. A teacher distributed 600 chocolates among three students. 40 more than  $\frac{2}{5}$  times, the number of chocolates received by first student, 20 more than  $\frac{2}{7}$  times, the number of chocolates received by second student and 10 more than  $\frac{9}{17}$  times the number of chocolates received by third student are all equal. Then find the number of chocolates received by the first student.

- a. 180
- b. 160

c. 150

d. 155

e. None of these

8. A vessel is filled with liquid, 3 parts of which are water and 5 parts syrup. How much of the mixture must be drawn off and replaced by water to make the ratio of syrup and water, 1:1?

a.  $\frac{1}{3}$

b.  $\frac{1}{4}$

c.  $\frac{1}{5}$

d.  $\frac{1}{7}$

e. None of these

9. Chiku, Tipu and Pinku have some candies with each. Five times the number of candies with Pinku equals seven times the number of candies with Chiku while five times the number of candies with Chiku equals seven times the number of candies with Tipu. What is the minimum number of candies that can be there with all three of them put together?

a. 209

b. 119

c. 109

d. 97

e. None of these

10. There are two vessels containing the mixture of milk and water. In the first vessel the water is  $\frac{2}{3}$  of the milk and in the second vessel water is just 40% of the milk. In what ratio these are required to mix to

make 24 litres mixture in which the ratio of water is to milk is 1:2?

- a. 4:3
- b. 5:7
- c. 5:2
- d. 7:5
- e. None of these

11.Dhiraj have coins are in the ratio of Rs.1 coins, 50p coins and 25p coins can be expressed by three consecutive odd prime numbers that are in ascending order. The total value of coins in the bag is Rs 58. If the numbers of Rs.1, 50p, and 25p coins are reversed, find the new total value of coins in the bag of Dhiraj?

- a. Rs. 86
- b. Rs. 83
- c. Rs. 75
- d. Rs. 82
- e. None of these

12.There are three kinds of books in the personal library of Mr. Sharma Technical, non-technical and fiction. Ratio of technical to non-technical is 3: 2; ratio of non-technical to fiction is 4: 3, and the total of the books is more than 1000? Which one of following can be the total of the book?

- a. 1002
- b. 1004
- c. 1008
- d. 1001
- e. Cannot determine

13.A jeep and a bus are available to cross a bridge. The speed of the bus is thrice that of the jeep. The capacity of the bus is 50 persons and that of jeep is 30 persons. The average occupancy of the jeep is twice that of the bus. The tickets for the jeep and the bus cost Re 1 and Re 1.50 respectively. What is the ratio of the average rupee collection of the bus to that of the jeep in a day? Assume there is no wastage time between trips and the occupancy of the jeep/bus is defined as the ratio of the actual number of persons boarding it and its capacity.

- a. 15:4
- b. 4:15
- c. 15:8
- d. 8:15
- e. Cannot determined

14.During our campaign against child labour we have found that in three glass making factories A, B and C there were total 33 children aged below 18 were involved. The ratio of male to female in A, B and C was 4:3, 3:2 and 5:4 respectively. If the no. of female children working in the factories B and C be equal then find the no. of female children working in factory A?

- a. 5
- b. 2
- c. 8
- d. 6
- e. None of these

15. A bag contains Rs. 1, Rs. 2 and Rs. 10 coins in the ratio  $2 : 5 : 6$ . Total amount in the bag is equal to Rs. 360. The ratio of number of Rs. 2, Rs. 10 and Rs. 1 coins respectively is

- a.  $6 : 5 : 2$
- b.  $5 : 2 : 6$
- c.  $2 : 5 : 6$
- d.  $2 : 6 : 5$
- e.  $5 : 6 : 2$

16. Two egg sellers, sitting on the table. One seller has 7 eggs and other had 5 eggs. One of the common friends of both passing by requested them to share their food in return for money. The three of them shared the eggs equally and the third friend paid the other two a total of Rs. 24. Find the difference between the amounts received by two sellers?

- a. Rs 18
- b. Rs 6
- c. Rs 12
- d. Rs 14
- e. None of these

17. The ratio between the three angles of a quadrilateral is  $1 : 6 : 2$  respectively. The value of the fourth angle of the quadrilateral is  $450^\circ$ . What is the difference between the value of the largest and the smallest angles of the quadrilateral?

- a. 1650
- b. 1400
- c. 1750

d. 1500

e. None of these

**Direction (18-19).** Study the information and answer the following questions.

Mr. Kulkarni decided the vacation trip with family. The cost of insurance to hire tourist van is proportional to the square of the speed van and Rs 64 per hour for a speed of 16 kmph. Other costs amount to Rs 400 per hour. The van has to make a journey of 400 km at a constant speed.

18. The most economical speed for Mr. Kulkarni's trip is:

- a. 35 kmph
- b. 20 kmph
- c. 40 kmph
- d. 30 kmph

e. None of these

19. The total cost for the Mr. Kulkarni's trip at this most economical speed is:

- a. Rs 3000
- b. Rs 9000
- c. Rs 6000
- d. Rs 5000

e. None of these

20. Prithvi and Kavitha started a business by investing Rs. 25000 and Rs. 28000 respectively. 4 months later, Kavitha withdrew her entire money and Shyam and Mala joined the business with investments of Rs. 20000 and Rs. 26000 respectively. If the difference in total shares of Shyam and Mala together and total

shares of Prithvi and Kavitha together after a year is Rs. 6600, then find the total profit?

- a. Rs. 125600
- b. Rs. 117000
- c. Rs. 132800
- d. Rs. 108000
- e. None of these

21. Ashok, Ganesh and Logu started a business by investing Rs. 34000, Rs. 26000 and Rs. 38000 respectively. Ashok is a working partner and Ganesh and Logu is sleeping partner in a business. For managing the business, Ashok receives 10 % of profit. Find the difference between the share of Ashok and Logu, if the total profit at the end of the year is Rs. 73500?

- a. Rs. 4650
- b. Rs. 5280
- c. Rs. 4320
- d. Rs. 5860
- e. None of these

22. P, Q and R started a business by investing in the ratio of 2 : 3 : 4. After 4 months, Q invested 50 % more than the initial investment and after another 2 months, P withdraw one – third of the initial investment. Find the total profit, if the share of P after one year is Rs. 35000?

- o Rs. 185000
- o Rs. 216000
- o Rs. 203000

- o Rs. 197000
- o None of these

23. P, Q and R started a business with investments of Rs. 12000, Rs. 15000 and Rs. 18000 respectively. After 8 months from the start of the business, Q and R invested additional amounts in the ratio of 3: 5 respectively. If at the end of the year, the ratio of share of P and Q was 3: 4, then what was the additional amount invested by Q after 8 months?

- a. Rs. 1500
- b. Rs. 1800
- c. Rs. 2100
- d. Rs. 3000
- e. None of these

24. Aravind, Ganesh and Thyagu started a business by investing Rs. 24000, Rs. 30000 and Rs. 36000 respectively. Arvind is a working partner and Ganesh and Thyagu is sleeping partner in a business. For managing the business, Aravind receives 10 % of profit. Find the difference between the share of Aravind and Thyagu, if the total profit at the end of the year is Rs. 72000?

- a. Rs. 2520
- b. Rs. 1850
- c. Rs. 1440
- d. Rs. 2890
- e. None of these

25. Moni, Sree and Ranji started a business by investing Rs. 75000, Rs. 90000 and Rs. 85000

respectively. After 5 months, Moni invested 20 % more than the initial investment and Ranji withdraw the whole amount. And after 3 months, Sree invested Rs. 6000 and at the same time Ranji entered into a business with Rs. 50000. Find the share of Sree, if the total profit at the end of the year is Rs. 131232?

- a. Rs. 50178
- b. Rs. 51320
- c. Rs. 52992
- d. Rs. 48324
- e. None of these

26. Shankar invested one- third of the investment for three-fourth of total period and Kavi invested two-fifth of the investment for one fourth of the total period and Silambu invested the remaining amount for 4 months. Total profit at the end of the year is Rs. 23700. Find the share of Kavi?

- a. Rs. 5400
- b. Rs. 6200
- c. Rs. 6800
- d. Rs. 5900
- e. None of these

27. P, Q and R enter into a partnership by investing Rs. 5200, Rs. 7500 and Rs. 6300 respectively. After 4 months, P invested Rs. 1300 more and Q withdraw the whole amount. And after 5 months, R withdraws Rs. 1300 and at the same time Q enters into a partnership by investing Rs. 10000. Find the

difference between the shares of P and R, if the total profit at the end of the year is Rs. 92025?

- a. Rs. 560
- b. Rs. 410
- c. Rs. 535
- d. Rs. 495
- e. None of these

28. Akil, Abinav and Ajay started a restaurant where their initial investments were in the ratio of 3:4:5. At the end of 6 months, Akil invested an amount such that his total capital became equal to Abinav's initial capital investment. If the annual profit of Abinav is Rs. 2400 then what is the total profit of the restaurant?

- a. Rs. 9400
- b. Rs. 7500
- c. Rs. 6800
- d. Rs. 8300
- e. None of these

29. Karunya and Kalpana invest Rs.12000 each, Karunya invests the amount for 4 months and Kalpana invests the amount for all the 12 months in the year. If the total profit at the end of the year is Rs. 32000, find their shares?

- a. 8000, 24000
- b. 5000, 15000
- c. 7000, 21000
- d. 6000, 18000
- e. None of these

30. Sethu is a working and Santhanu is sleeping partner in a car business. Sethu puts in Rs.25000 and Santhanu puts in Rs.30000. Sethu receives  $12\frac{1}{2}\%$  of the profit for managing the business and the rest is divided in proportion to their capital. What does each get out of a profit of Rs. 4400?

- a. 2300,2100
- b. 1250,1600
- c. 1500,1850
- d. 2000,2400
- e. None of these

31. P, Q & R enter into a partnership to construct a school by investing in the ratio of 5:4:6. After 1 year, Q invests another Rs.240000. And after one year R also invests Rs.240000. At the end of 3 yrs profits are shared in the ratio of 5:6:7. Find the initial investment of Q.

- a. Rs.320000
- b. Rs.240000
- c. Rs.160000
- d. Rs.480000
- e. None of these

32. Abinav, Durga and Gowrav jointly thought of engaging themselves in a business. It was agreed that Abinav would invest Rs. 13000 for 3 months, Durga, Rs. 16000 for 6 months and Gowrav, Rs. 30,000 for 5 months. Abinav wants to be the working member for which, he was to receive 10% of the profits. The

profit earned was Rs. 14800. Calculate the share of Gowrav in the profit(approx).

- a. Rs 3405.5
- b. Rs 7010.5
- c. Rs 5020.5
- d. Rs 3425.5
- e. None of these

33. Vinay and Sheela started a business by investing Rs 2600 and Rs 2400 respectively. After 7 months, they added Rs 600 and Rs 800 respectively. 33% of the total profit earned after a year was given as a donation. If after giving donation, the difference between the shares of Vinay and Sheela is Rs 350, find the total profit earned after a year?

- a. Rs 17,000
- b. Rs 25,000
- c. Rs 18,000
- d. Rs 12,000
- e. Rs 27,000

34. Prathyeksan and Kavya started a business by investing Rs 1750 and Rs 2100 respectively. 5 months later, Kavya withdrew her entire money and Santhiya and Maya joined the business with investments of Rs 4000 and Rs 6500 respectively. If after a year difference in total shares of Santhiya and Maya together and total shares of Prathyeksan and Kavya together is Rs 6,720, find the total profit?

- a. Rs 16,900
- b. Rs 16,300



- c. Rs 15,100
- d. Rs 15,300
- e. Rs 16,800

**35.** Moni started a business by investing Rs.50,000. She invested Rs. 20,000 as additional amount in the next year and her friend Devi joined her with an amount of Rs.70,000. Moni invested another Rs. 20,000 in the 3rd year and Anu joined them with Rs. 70,000. At the end of these 3 years, they earned a profit of Rs. 3,00,000. Find Devi's share?

- a. 1,00,000
- b. 1,25,000
- c. 75,000
- d. 1,50,000
- e. None of these

**36.** Vasu and Ravi entered into a partnership. Vasu invested Rs. 50000 and Ravi invested Rs.45000. At the end of 4 months, Vasu withdraw half of his capital, and at the end of the 5th month Ravi withdraw one third of his capital and then Siddarth entered with a capital of Rs.70000. How will the profit of Rs. 185500 be divided at the end of the year?

- a. 56000,60900,68600
- b. 65900, 57800,61800
- c. 57800,68600,59100
- d. 57800,68600,59100
- e. None of these

**37.** M and N invested in a business in which M invests Rs.385 more than N. N invested for 9months while M

invested for 5months. If M get Rs.65 more than N out of profit of Rs.1350. Then then total amount invested in the business approximately is,

- a. 1452
- b. 7413
- c. 6298
- d. 5778
- e. None of these

**38.** Two persons P and Q invested in a business with 21 lakh and 28 lakh rupees. They agree that 30% of the profit should be in the ratio 2:3 for P and Q and rest is divided between them according to their investment. If Q got Rs.1200 more than P, then then total profit Q is

- a. 4350
- b. 4567
- c. 4467
- d. None
- e. None of these

**39.** M and N invested in a work which M invest Rs 3015 more than N. N invested for 7 months while M invested for 5 months. If M gets Rs 425 more than N, out of a total profit of Rs 3400. Then the amount invested in the business by M approximately is,

- a. 6784
- b. 6258
- c. 7524
- d. 7275
- e. None of these

40. Agalya and Bhairavi enter into a partnership and Agalya invests Rs 14000 in the partnership. At the end of 3 months she invests Rs 5000. At the end of another 4 months, she invests the another Rs 6000. If Bhairavi invests a certain sum in the partnership at the beginning of the year and leaves it and receives Rs 9720 as her share if the total of Rs 31320 a year, how much did Bhairavi invest in the company?

- a. 37850
- b. 42500
- c. 41400
- d. 35478
- e. None of these

41. A, B and C are 3 partners in a business. Their investments are respectively Rs 2000, Rs 4,000 and Rs 3,000. A gets 30% of total profit for managing the business. The remaining profit is divided among them in the ratio of their investments. At the end of the year, the profit of A is Rs 1100 less than the sum of the profit of B and C. What amount of income will C get?

- a. Rs 2100.75
- b. Rs 2887.5
- c. Rs 2705.75
- d. Rs 2546.25
- e. None of these

42. P started a business in 1990 by investing Rs.25,000. She invested Rs. 10,000 as additional amount in 1991 and her friend Q joined her with an amount of Rs.35,000. P invested another Rs. 10,000 in 1992 and

R joined them with Rs. 35,000. At the end of these 3 years, they earned a profit of Rs. 150,000. Find Q's share?

- a. Rs.50,000
- b. Rs.65,000
- c. Rs.75,000
- d. Rs.15,000
- e. None of these

43. A started a business with Rs.52000 and after 4 months B joined him with Rs.39000. At the end of the year, out of the total profit B received total Rs.20000 including 25% of the profit as commission for managing the business. What amount did A receive?

- a. Rs.20000
- b. Rs.10000
- c. Rs.15000
- d. None of these
- e. None of these

44. A and B started a business after investing Rs. 12,000 and Rs. 14,400 respectively. At the end of the year B gets 12% of the total profit as management fees and the rest amount is distributed between both the partners in the ratio of their investments. If total annual profit is Rs. 7,500, then find the difference between their profits.

- a. Rs. 1250
- b. Rs. 600
- c. Rs. 900
- d. Rs. 1500

e. None of these

**45.**Shina and Bhuwan started a business of utensils in Jagadhari by investing their money in the ratio of 4:3 respectively. After seven months, Preeti joined them by investing her money equal to Shina's investment. After 2 years, they get 25% profit which is equal to the amount Rs. 14750. Find the Investment of Preeti.

a. Rs. 24000

b. Rs. 17000

c. Rs.18000

d. None of these

e. None of these

**46.**Suman and Chavi started a business by investing Rs 1960 and Rs 2450 respectively. Chavi got Rs 200 per month for her work. After 5 months, Suman added Rs 340 more and Chavi left. If after a year they get a total profit of Rs 18,850, then what total amount did Chavi get?

a. Rs 7,150

b. Rs 6,980

c. Rs 6,320

d. Rs 4,250

e. Rs 6,250

**47.**There are two persons Ranit and Ratan. Ranit supplies whole of the capital amounting to Rs. 45000 with the condition that the profits are to be equally distributed and that Ratan pays Ranit interest on half of the capital at 10% per annum, but receives, Rs. 120 per month for carrying on the concern. What is their

total yearly profit , when Ratan's income is  $\frac{1}{2}$  of Ranit's income.

a. Rs.9000

b. Rs.8750

c. Rs.9180

d. Rs.6660

e. Rs.7542

**Directions (48-50):** A, B and C started a business by investing Rs 800, Rs 1600 and Rs 2000 respectively. After a quarter they invested amounts in a ratio 1 : 4 : 2. After another quarter, they invested amounts in ratio 3 : 2 : 3. In the last quarter the ratio of investments was same as in 2nd quarter. Also in the last quarter, the respective amounts of A, B and C was double than the respective amounts invested in 2nd quarter. The total investment of C before 4th quarter was Rs 1400 more than that of A during same duration. Also ratio of B's share in profit to total profit at the end of year was 66 : 153.

**48.**Find the total investment of A, B and C.

a. Rs 10,200

b. Rs 11,300

c. Rs 9,800

d. Rs 10,080

e. Rs 11,090

**49.**If they respectively had invested same amounts in each quarter after quarter 1 which is equal to their respective investments in quarter 1, then what would be the profit of A at the end of year out of a total profit of Rs 19,350?

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a. Rs 2510

b. Rs 3320

c. Rs 2560

d. Rs 3150

e. None of these

**50.** If the respective investments in third quarter was changed and this was in ratio 2 : 4 : 1 (other investments being the same), then what would be the total investment of all three in third quarter, if the

average investment of all A B and C was Rs 3100 for whole year?

a. Rs 700

b. Rs 800

c. Rs 500

d. Rs 900

e. None of these

Answer Key with Solution

**Solution (1-50)**

**1. A**

$$x + 4x + 5x + 60 = 360^\circ$$

$$10x = 300$$

$$\Rightarrow x = 30$$

$$\text{Required difference} = 5x - x$$

$$= 4x = 4 \times 30 = 120^\circ$$

**2. A**

Final ratio of gold coins among Lalita: Amita: Neeta =  
20: 73: 83

Let x be the common factor in the given ratio,

$$20x + 25 + 73x + 15 + 83x + 30 = 950$$

$$\Rightarrow 176x = 880$$

$$\Rightarrow x = 5$$

$$\begin{aligned} \text{Gold coins received by Amita from Mr. Pandit} &= 5 \times 73 \\ &+ 15 = 380 \end{aligned}$$

**3. B**

$$3x + 5x + 9x + 7x = 360$$

$$\Rightarrow 24x = 360$$

$$\Rightarrow x = 15$$

$$\text{Second largest angle of quadrilateral} = 7 \times 15 = 105$$

According to the question,

$$\text{Largest angle of triangle} = 105$$

Let the second largest angle be x

$$\Rightarrow 105 + 25 + x = 180$$

$$\Rightarrow 130 + x = 180$$

$$\Rightarrow x = 50$$

**4. C**

Coins are in the ratio  $3 : 3\frac{1}{2} : 4$ , i.e.  $6 : 7 : 8$

$$\text{Their proportional value} = 6 \times 1 : 7 \times \frac{1}{2} : 8 \times \frac{1}{4}$$

$$= 6 : 3\frac{1}{2} : 2$$

$$= 12 : 7 : 4$$

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The value of one rupee coins =  $(12 / 12 + 7 + 4) \times 161$   
= Rs.84

The number of one rupee coins = 84 coins

The value of 50paise coins =  $(7 / 12 + 7 + 4) \times 161$  =  
Rs.49

The number of 50paise coins = 98 coins

The value of 25paise coins =  $(4 / 12 + 7 + 4) \times 161$  =  
Rs.28

The number of 25paise coins = 112 coins

**5. E**

Total milk in 3 cans : Total water in 3 cans

=  $3/5 + 5/7 + 1/4 : 2/5 + 2/7 + 3/4$

=  $(84 + 100 + 35)/140 : (56 + 40 + 105)/140$

= 219 : 201

= 73 : 67

**6. C**

Let he has x number of Rs.5 coins.

No. of Rs.2 coins = x + 5

Value of Rs.1 and 50 paisa coins = Rs. 26

The Value of all Coins = Rs. 50

The value of Rs. 2 and Rs. 5 coins =  $50 - 26 = 24$

$\Rightarrow 5x + (x + 5) \times 2 = 24$

$\Rightarrow 5x + 2x + 10 = 24$

$\Rightarrow 7x = 14$

$\Rightarrow x = 2$

No. of Rs.2 coins =  $2 + 5 = 7$ .

**7. C**

Let the number of chocolates received by 1st student = x

Let the number of chocolates received by 2nd student = y

Let the number of chocolates received by 3rd student = z

According to question :  $2x/5 + 40 = 2y/7 + 20 = 9z/17 +$

$10 = K(\text{Let})$

$X = 5(k - 40)/2$

$Y = 7(k - 20)/2$

$Z = 17(k - 10)/9$

By solving the given equation, we get value of K = 100

Number of chocolates received by 1st student =  $x = 5(k - 40)/2 = 150$

**8. C**

Ratio of syrup and water = 5 : 3

Let syrup = 5x

Water = 3x and total mixture = 8x

Let 8y units of mixture is drawn off it means in 8y units of mixture 5y units will be syrup and 3 y units will be water (Because ratio of syrup and water is 5 : 3)

New quantity of syrup =  $5x - 5y$

New quantity of water =  $3x - 3y + 8y = 3x + 5y$  (8y units of water is added)

They are equal to each other.

$\Rightarrow 5x - 5y = 3x + 5y$

$\Rightarrow 2x = 10y$

$\Rightarrow y/x = 2/10 = 1/5$

$\Rightarrow 8y/8x = 1/5$

So, 1/5th of the mixture must be taken out and replaced with water.

**9. C**

Let the candies with Chiku, Pinku and Tipu be a,b and c respectively.

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Given,  $5b = 7a$ , and  $5a = 7c$

$$25b = 35a \text{ \& } 35a = 49c$$

$$25b = 35a = 49c \Rightarrow b/49 = a/35 = c/25$$

The least possible integral values for a, b & c will be a =

$$35 \text{ } b = 49 \text{ \& } c = 25$$

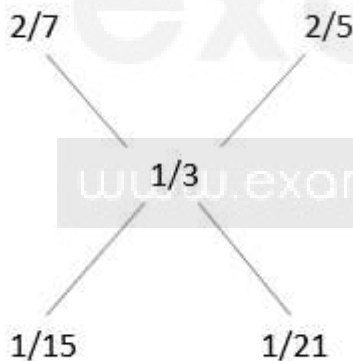
$$\text{Total} = 35 + 49 + 25 = 109$$

**10. B**

Concentration of water in first vessel =  $2/5 = 40\%$

Concentration of water in second vessel =  $2/7 = 28.57\%$

By allegation,



Hence the ratio will be,

$$21:15$$

Or, 7:5

Therefore the ratio of first mixture to second mixture = 5:7

**11. D**

Since the ratio of the number of Rs. 1, 50p and 25p coins can be represented by 3 consecutive odd numbers that

are prime in ascending order; the only possibility for the ratio is 3:5:7

Let the number of Rs.1, 50p and 25p coins be  $3x$ ,  $5x$  and  $7x$  respectively.

Hence, total value of coins in paisa

$$= 100 \cdot 3x + 50 \cdot 5x + 25 \cdot 7x = 725x$$

$$\text{Given } 725x = 5800 \text{ therefore } x = 8$$

If the number of coins of Rs. 1, 50p and 25p is reversed, the total value of coins in the Bag (in paisa)

$$= 100 \cdot 7x + 50 \cdot 5x + 25 \cdot 3x = 1025x$$

Substitute  $x = 8$

$$\text{New total} = 82$$

**12. D**

Technical: non-technical = 3:2

Non-technical: fiction = 4:3

Technical: Non-technical: fiction = 6:4:3

and books can exist only in integral numbers

i.e. total no of books has to be a multiple of  $6+4+3 = 13$

only answer d is a multiple of 13

**13. A**

Average Rupee collection = Speed \* capacity \* Occupancy \* Ticket rate

ratio of average Rupee collection of bus to that of jeep = product of above rates

$$= (3 \cdot 50 \cdot 1 \cdot 1.5) : (1 \cdot 30 \cdot 2 \cdot 1) = 15:4$$

**14. D**

Male : Female,

$$A = 4x : 3y$$

$$B = 3y : 2y$$

$$C = 5z : 4z$$

$$\text{But, } 2y = 4z$$

So,

Male : Female

$$A = 4x : 3x$$

$$B = 6z : 4z$$

$$C = 5z : 4z$$

$$\text{Therefore, } 7x + 19z = 33$$

But  $z$  can assume only one value i.e.,  $z = 1$

$$\text{Hence, } 7x + 19 = 33$$

$$X = 2$$

Thus the no. of female children in factory A =  $3x = 6$

**15. E**

Let the number of coins of Rs. 1, Rs. 2 and Rs. 10 be  $2x$ ,  $5x$  and  $6x$  respectively.

Therefore, Rs. 1 amounts to  $2x$

Rs. 2 amounts to  $10x$

And Rs. 10 amounts to  $60x$

Since, the total amount is Rs. 360

$$2x + 10x + 60x = 360$$

$$72x = 360$$

$$\Rightarrow x = 5$$

Therefore,

$$\text{Rs. 1} = 2x = 2 * 5 = 10$$

$$\text{Rs. 2} = 10x = 10 * 5 = 50$$

$$\text{Rs. 10} = 60x = 60 * 5 = 300$$

$$\text{Total no. of Rs. 1 coins} = 10/1 = 10$$

$$\text{Total no. of Rs. 2 coins} = 50/2 = 25$$

$$\text{Total no. of Rs. 10 coins} = 300/10 = 30$$

$$\text{Required ratio} = 25 : 30 : 10 \text{ OR}$$

$$5 : 6 : 2$$

**16. C**

As the two seller had a total of = 12 eggs,

Also they shared eggs in equal number. So each of them must have got =  $12/3 = 4$  eggs.

The first and the second seller must have given =  $7 - 4 = 3$  eggs and

$(5 - 4) = 1$  egg to their friend.

Hence, the ratio of their share is 3:1.

Now, money has to be distributed in the ratio of their contribution. As total money paid by the stranger is Rs.

24.

Hence the first seller get Rs.  $(24 * 3/4) = 18$  and

the second seller get Rs.  $(24 * 1/4) = 6$

$$\text{Difference} = 18 - 6 = \text{Rs. } 12$$

**17. C**

Sum of the angles of quadrilateral =  $360^\circ$

$$\Rightarrow x + 6x + 2x + 45^\circ = 360^\circ$$

$$\Rightarrow 9x = 360^\circ - 45^\circ = 315^\circ$$

$$\Rightarrow x = 315/9 = 35^\circ$$

$$\text{Required difference} = 6x - x = 5x = 5 * 35 = 175^\circ$$

**18. C**

$$\text{Cost} = x * \text{speed}^2$$

$$64 = x * 16 * 16$$

$$x = \frac{1}{4}$$

$$\text{Cost} = \frac{\text{speed}^2}{4}$$

$$\text{Total cost} = \left\{ \frac{\text{speed}^2}{4} + 400 \right\} * 400 / \text{speed}$$

By using options, we find 40kmph to be most economical.

**19. E**

$$\text{Total cost} = \{ \text{speed}^2 / 4 + 400 \} * 400 / \text{speed}$$

Economical speed = 40 kmph

$$\text{Total cost} = \{ 40^2 / 4 + 400 \} * 400 / 40 = \text{Rs. } 8000$$

**20. B**

The share of Prithvi, Kavitha, Shyam and Mala,

$$=> [25000 * 12] : [28000 * 4] : [20000 * 8] : [26000 * 8]$$

$$=> 300000 : 112000 : 160000 : 208000$$

$$=> 75 : 28 : 40 : 52$$

The difference in total shares of Shyam and Mala together and total shares of Prithvi and Kavitha together after a year = Rs. 6600

$$=> (75 + 28)'s - (40 + 52)'s = 6600$$

$$=> 103's - 92's = 6600$$

$$=> 11's = 6600$$

$$=> 1's = 600$$

$$\text{Total profit} = 195's = 600 * 195 = \text{Rs. } 117000$$

**21. A**

For managing the business, Ashok receives,

$$=> 73500 * (10/100) = \text{Rs. } 7350$$

$$\text{Remaining} = 73500 - 7350 = 66150$$

The ratio of investment of Ashok, Ganesh and Logu

$$=> 34000 : 26000 : 38000$$

$$=> 17 : 13 : 19$$

$$49's = 66150$$

$$1's = 1350$$

$$\text{The share of Ashok} = (17 * 1350) + 7350 = 30300$$

$$\text{The share of Logu} = (19 * 1350) = 25650$$

$$\text{Required difference} = 30300 - 25650 = \text{Rs. } 4650$$

**22. C**

The share of P, Q and R

$$=> [2x * 6 + 2x * (2/3) * 6] : [3x * 4 + 3x * (150/100) * 8] : [4x * 12]$$

$$=> [12x + 8x] : [12x + 36x] : [48x]$$

$$=> 20 : 48 : 48$$

$$=> 5 : 12 : 12$$

$$5's = 35000$$

$$1's = 7000$$

$$\text{Total profit} = 29's = \text{Rs. } 203000$$

**23. D**

Let the ratio additional amount of Q and R be 3x and 5x,

The ratio of profit of A: B: C

$$= [12000 * 12] : [15000 * 8 + (15000 + 3x) * 4] : [18000 * 8 + (18000 + 5x) * 4]$$

$$= 144000 : (120000 + 60000 + 12x) : (144000 + 72000 + 20x)$$

The ratio of share of P and Q = 3: 4

$$144000 / (180000 + 12x) = (3/4)$$



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$$192000 = 180000 + 12x$$

$$12000 = 12x$$

$$x = 1000$$

$$\begin{aligned} \text{Q's additional investment after 8 months} &= 3x = 3 \times 1000 \\ &= \text{Rs. } 3000 \end{aligned}$$

**24. C**

For managing the business, Aravind receives,

$$=> 72000 \times (10/100) = \text{Rs. } 7200$$

$$\text{Remaining} = 72000 - 7200 = 64800$$

The ratio of investment of Aravind, Ganesh and Thyagu

$$=> 24000 : 30000 : 36000$$

$$=> 4 : 5 : 6$$

$$15's = 64800$$

$$1's = 4320$$

$$\text{The share of Aravind} = (4 \times 4320) + 7200 = 24480$$

$$\text{The share of Thyagu} = (6 \times 4320) = 25920$$

$$\text{Required difference} = 25920 - 24480 = \text{Rs. } 1440$$

**25. C**

The share of Moni, Sree and Ranji

$$\begin{aligned} => [75000 \times 5 + 75000 \times (120/100) \times 7] : [90000 \times 8 + \\ 96000 \times 4] : [85000 \times 5 + 50000 \times 4] \end{aligned}$$

$$=> 10005000 : 1104000 : 625000$$

$$=> 1005 : 1104 : 625$$

$$\text{Total profit} = \text{Rs. } 131232$$

$$2734's = 131232$$

$$1's = 48$$

$$\text{The share of Sree} = 1104 \times 48 = \text{Rs. } 52992$$

**26. A**

Let the total investment be x,

The ratio of profit of Shankar, Kavi and Silambu,

$$=> [(1/3)x \times (3/4) \times 12] : [(2/5)x \times (1/4) \times 12] : [(4/15)x \times 4]$$

$$=> 3x : (6/5)x : (16/15)x$$

$$=> (9/4) : (6/5) : (21/20)$$

$$=> 45 : 18 : 16$$

$$\text{Total profit} = \text{Rs. } 23700$$

$$79's = 23700$$

$$1's = 300$$

$$\text{The share of Kavi} = 18's = 200 \times 18 = \text{Rs. } 5400$$

**27. D**

The shares of P, Q and R

$$=> [5200 \times 4 + 6500 \times 8] : [7500 \times 4 + 10000 \times 3] : [6300 \times 9 + 5000 \times 3]$$

$$=> 72800 : 60000 : 71700$$

$$=> 728 : 600 : 717$$

$$2045's = 92025$$

$$1's = 45$$

$$\begin{aligned} \text{The difference between the shares of P and R} &= (728 - \\ &717)'s \end{aligned}$$

$$=> 11's = \text{Rs. } 495$$

**28. B**

$$\text{Initial investments ratio} = 3 : 4 : 5$$

At the end of 6 months, Akil invested an amount such that his total capital became equal to Abinav's initial capital investment

Now, Ratio of investment for one year

$$\text{Akil : Abinav : Ajay} = (3 \times 6 + 4 \times 6) : (4 \times 12) : (5 \times 12)$$

$$= (18 + 24) : 48 : 60$$

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$$=42 : 48 : 60$$

$$= 7 : 8 : 10$$

$$\text{Abinav's profit} = 2400$$

$$8's = 2400 \Rightarrow 1's = 300$$

$$\text{Total profit} = 25's = 25 \times 300 = \text{Rs. } 7500$$

**29. A**

As both Karunya and Kalpana invest the same amounts, the ratio of their profits at the end of the year is equal to the ratio of the time periods for which they have invested.

Thus, the required ratio of their profits = Karunya : Kalpana = 4: 12

$$= 1 : 3.$$

$$\text{Hence, share of Karunya in the total profit} = \frac{1}{4} \times 32000$$

$$= \text{Rs. } 8000$$

$$\text{Similarly, share of Kalpana in the total profit} = \frac{3}{4} \times 32000$$

$$= \text{Rs. } (3 \times 8000)$$

$$= \text{Rs. } 24000$$

**30. A**

=Sethu's share for managing the business i.e

$$12 \frac{1}{2} \% = 25 \times 4400 / 200$$

$$= \text{Rs. } 550$$

Remaining profit of Sethu and Santhanu as per their capital = 4400 – 550 = 3850

$$\text{Ratio of amounts} = 25000 : 30000$$

$$= 5:6$$

$$\text{Sum of ratios} = 5 + 6 = 11$$

$$\text{Sethu's share} = 3850 \times \frac{5}{11}$$

$$= \text{Rs. } 1750$$

$$\text{Sethu's total share} = 1750 + 550 = \text{Rs. } 2300$$

$$\text{Santhanu's share} = 3850 \times \frac{6}{11}$$

$$= 23100 / 11$$

$$= \text{Rs. } 2100$$

**31. A**

Let the initial investments of P, Q & R be Rs. 5x, Rs. 4x & Rs. 6x respectively

Then,

$$(5x \times 36) : [(4x \times 12) + (4x + 240000) \times 24] :$$

$$[(6x \times 24) + (6x + 240000) \times 12] = 5:6:7$$

$$180x : [48x + 96x + 5760000] : [144x + 72x + 2880000] = 5:6:7$$

$$180x : 144x + 5760000 : 216x + 2880000 = 5:6:7$$

$$180x / 144x + 5760000 = 5/6$$

$$1080x = 720x + 28800000$$

$$360x = 28800000$$

$$X = \text{Rs. } 80000$$

Hence Q's initial investment = 4x

$$= \text{Rs. } (4 \times 80000)$$

$$= \text{Rs. } 320000$$

**32. B**

For managing,

Abinav received = 10% of Rs. 14800

$$= 10/100 \times 14800$$

$$= \text{Rs. } 1480.$$

$$\text{Balance} = \text{Rs. } (14800 - 1480)$$

$$= \text{Rs. } 13320$$

$$\text{Ratio of their investments} = (13000 \times 3) : (16000 \times 6) : (30000 \times 5)$$

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$$= 39000 : 96000 : 150000$$

$$= 39 : 96 : 150$$

$$= 13 : 32 : 50$$

$$\text{Gowrav 's share} = \text{Rs } (50/95 * 13320)$$

$$\text{Gowrav 's share} = \text{Rs } 7010.5$$

**33. B**

	Vinay	Sheela
Investment	2600	2400
Period	(7)	(7)
	+	+
	3200	3200
	(5)	(5)

$$\text{Ratio of Profit} \Rightarrow 34200 : 32800$$

$$\Rightarrow 171 : 164$$

The difference between the shares of Vinay and Sheela is Rs 350

$$\Rightarrow 7's = 350$$

$$\Rightarrow 1's = 50$$

$$(171 + 164)'s = 335 * 50 = 16750$$

$$67\% \text{ of total profit} = 16750$$

$$\text{Total Profit} = 16750 * 100 / 67$$

$$\Rightarrow 25000$$

**34. E**

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	Prathyeksan	Kavya	Sandhiya	Maya
Investment	1750	2100	4000	6500
Period	(12)	(5)	(7)	(7)

Ratio of Profit=>21000 : 10500 : 28000 : 45500

=>6:3:8:13

The difference in total shares of Santhiya and Maya together and total shares of Prathyeksan and Kavya together is Rs 6,720

=>21's - 9's = 12's = 6720

=>Total Profit= (6720/12)\*30= 16800

35. A

	Moni	Devi	Anu
Investment	50000	70000	70000
Period	(1)	(2)	(1)

+

70000\*(1)

+

90000\*(1)

Ratio of Profit=>210000 : 140000 : 70000

=>3:2:1

Total Profit=300000

=>6's=300000

=>1's = 50000

Devi's Share= 100000

36. A

	Vasu	Ravi	Siddarth
Investment	50000	45000	70000
Period	(4)	(5)	(7)
	+	+	
Investment	25000	30000	
Period	(8)	(7)	

Ratio of profit=> 400000 : 435000 : 490000  
=>80:87:98

The total Profit is,

=>185500

Vasu's Profit=  $(80/265) \times 185500 = 56000$

Ravi's Profit=  $(87/265) \times 185500 = 60900$

Siddarth's Profit=  $(98/265) \times 185500 = 68600$

37. B

Let investment of M is  $X + 385$

Let investment of N is  $X$

Profit earned of M&N is,

$M/N = (X+385) \times 5 / x \times 9 \text{-----} > (1)$

Profit of M = 65 + profit of N

Total profit = 1350 = 65 + profit of N + profit of N

Profit of N = Rs.642.5

Profit of M = 65 + 642.5 = Rs.707.5

Profit ratio of both = 707.5 : 642.5

= 283 : 257-----> (2)

From 1 & 2,  $283 / 257 = (x + 385) * 5 / (x * 9)$

$X = 392.01$

Total investment  $= (392 + 385) * 5 + (392 * 9)$   
 $= \text{Rs. } 7413$

**38. A**

Ratio of profit of P & Q is,

$P:Q = 21:28 \Rightarrow 3:4$

Let total profit gained be X

Since, 30% of profit should be divided in ratio 2:3 for P & Q,

Remaining share is = 70% of x

P's share  $= 70/100 * x * 3/7 + 30/100 * x * 2/5$

Q's share  $= 70/100 * x * 4/7 + 30/100 * x * 3/5$

$(70/100 * x * 4/7 + 30/100 * x * 3/5) - (70/100 * x * 3/7 + 30/100 * x * 2/5)$

$= 1200$

$X = \text{Rs } 7500$

Q's total profit  $= 70/100 * 7500 * 4/7 + 30/100 * 7500 * 3/5$

$= \text{Rs } 4350$

**39. A**

Let investment of N be x

Profit of N be y

Investment of M is  $x + 3015$

Profit ratio of M & N is,

$M:N = [x + 3015] * 5 : x * 7 \rightarrow (1)$

Profit of M  $= 425 + \text{profit of N}$

Total profit  $= 3400 = 425 + \text{profit of N} + \text{profit of N}$

Profit of N  $= \text{Rs } 1487.5$

Profit of M  $= \text{Rs } 1487.5 + 425$

$= \text{Rs } 1912.5$

Profit ratio of

$$M \& N = 1912.5 : 1487.5$$

$$= 153 : 119 \text{-----} \rightarrow (2)$$

$$153/119 = (x+3015) \cdot 5/x \cdot 7$$

$$X = \text{Rs. } 3769$$

$$M's \text{ investment} = x + 3015$$

$$= 3769 + 3015$$

$$= \text{Rs } 6784$$

**40. C**

Let investment of Bhairavi be X rupees for 12 months

$$\text{Agalya's investment for 12 months} = 14000 \cdot 3 + 5000 \cdot 4 + 6000 \cdot 5$$

$$= \text{Rs } 92000$$

$$\text{Share received by Bhairavi} = \text{Rs } 9720$$

$$\text{Share received by Agalya} = \text{Rs } 21600$$

$$\text{Ratio of their profit } 92000/X = 21600/9720$$

$$X = \text{Rs } 41400$$

**41. B**

The ratio of profit of A, B and C is  $2000:4000:3000 = 2:4:3$ .

Let the annual profit be P.

Then, A will get 0.3p for managing the business.

And, remaining 0.7p will be distributed in the ratio of their investment.

So, from the remaining investment, A will get,

$$= 2/(2+4+3) \times 0.7p = 2/9 \times 0.7p$$

$$\text{B gets} = 4/(2+4+3) \times 0.7p = 4/9 \times 0.7p$$

$$\text{and c Gets} = 3/(2+4+3) \times 0.7p = 3/9 \times 0.7p$$

$$\text{A's total profit} = 0.3p + (2/9) \times 0.7p$$

Given, at the end of the year, the profit of A is Rs 1100 less than the sum of the profit of B and C

$$\Rightarrow 4/9 \times 0.7p + 3/9 \times 0.7p - 1100 = 0.3p + 2/9 \times 0.7p$$

$$\Rightarrow 7/9 \times 0.7p - 2/9 \times 0.7p - 0.3p = 1100$$

$$\Rightarrow p = 12,375$$

So, C's share =  $3/9 \times 0.7p = \text{Rs } 2887.5$

**42. A**

P invested

Rs.25,000 for 12 months, Rs.(25000 + 10000) for 12 months, , Rs.(25000 + 10000 + 10000) for 12 months.

i.e., P invested Rs.25,000 for 12 months, Rs.35000 for 12 months Rs.45000 for 12 months.

Q invested Rs. 35000 for 2 years;

i.e., Rs.35000 for 24 months

And, R invested Rs.35000 for 1 year; i.e., Rs. 35000 for 12 months.

Their investing ratio: P : Q : R

=  $(25,000 \times 12 + 35000 \times 12 + 45000 \times 12) : (35000 \times 24) : (35000 \times 12)$

= 252:168:84

= 3:2:1

Total profit for 3 years = Rs.1,50,000

them, Q's share =  $\text{Rs.}(1,50,000 \times 2 / (3+2+1))$

=  $\text{Rs.}(1,50,000 \times 2/6) = \text{Rs.}50,000$

**43. A**

Ratio of their capital =  $52000 : 39000 = 4 : 3$

Ratio of their time =  $12 : 8 = 3 : 2$

Ratio of profit =  $4 \times 3 : 3 \times 2 = 12 : 6 = 2 : 1$

Let profit of A be 200 units and profit of B be 100 units.

Total profit = 300 units

For running business B received =  $.25 \times 300 = 75$  units

Remaining profit will be divided in the ratio of their capitals.

So, profit of A =  $225/3 \times 2 = 150$  units

Profit of B =  $225/3 \times 1 = 75$  units

Total profit of B =  $(75 + 75) = 150$  units

According to the question,

150 units = Rs.20000



$$1 \text{ unit} = 20000/150$$

$$150 \text{ units} = 20000/150 \times 150 = 20000$$

$$\text{Profit of A} = 150 \text{ units} = \text{Rs.} 20000$$

**44. D**

From the given data,

$$\text{Ratio of capital} = 12000 : 14400 = 5 : 6$$

Required Difference =

$$\frac{6-5}{6+5} \left( \frac{88}{100} \times 7500 \right) + \frac{12}{100} \times 7500$$

$$= \frac{1}{11} \times 88 \times 75 + 12 \times 75$$

$$= 600 + 900$$

$$= 1500$$

**45. B**

Let their weighted ratio be  $4x$ ,  $3x$ , and  $4x$

First of all, to calculate their weighted ratios

$$\Rightarrow \text{Shina} = 4 \times 24 \text{ (2 years = 24 months)} = 96$$

$$\Rightarrow \text{Bhuwan} = 3 \times 24 \text{ (2 years = 24 months)} = 72$$

$$\Rightarrow \text{Preeti} = 4 \times 17 \text{ (24 months - 7 months)} = 68$$

Ratio will be: 24:18:17

$$\text{Total profit after 2 years} = 14750 \times 100/25 = \text{Rs } 59000$$

$$\Rightarrow \text{Investment by Preeti} = 59000 \times 17 / 59 = \text{Rs } 17000$$

**46. E**

Ratio of shares of profit of

Suman : Chavi

$$1960 \times 5 + 2300 \times 7 : 2450 \times 5$$

$$\Rightarrow 280 \times 5 + 2300 : 350 \times 5$$

$$\Rightarrow 74 : 35$$

Chavi got  $200 \times 5 = \text{Rs } 1000$  for her work, so now the profit which will be divided according to ratio will be  $18850 - 1000 = \text{Rs } 17,850$

$$\text{So Chavi's share} = \frac{35}{74+35} \times 17,850 = 5,250$$

$$\text{So total amount of Chavi} = 1000 + 5250 = \text{Rs } 6,250$$

47. C

Let total Profit be x. Amount received by Ratan (from the total profit) =  $120 \times 12 = 1440 = 120 \times 12 = 1440$

Amount received by Ranit (from Ratan) as interest =  $22500 \times 10/100 = 2250$

Let total profit =  $2x + 1440 = 2x + 1440$

Then, Ranit and Ratan gets xx as share of the profit.

Ranit's total income in the year =  $x + 2250$

Ratan's total income in the year =  $x + 1440 - 2250 = x - 810$   $2(x - 810) = x + 2250$

$\Rightarrow 2x - 1620 = x + 2250$

$\Rightarrow x = 3870$

Total yearly profit =  $2x + 1440 = \text{Rs. } 9180$

48. A

Quarters means 3 months each

Ratio of investments in 2nd quarter – 1 : 4 : 2, so let amounts – x, 4x, 2x

Ratio of investments in 3rd quarter – 3 : 2 : 3, so let amounts – 3y, 2y, 3y

In last quarter, respective amount is double then in 2nd quarter, so amounts – 2x, 8x, 4x

In the last quarter the ratio of investments was same as in 2nd quarter. — this is not required to solve question.

Given:

$(2000 + 2x + 3y) = 1400 + (800 + x + 3y)$

Solve, x = Rs 200

Now ratio of profit share — A : B : C is

$800 \times 3 + x \times 3 + 3y \times 3 + 2x \times 3 : 1600 \times 3 + 4x \times 3 + 2y \times 3 + 8x \times 3 : 2000 \times 3 + 2x \times 3 + 3y \times 3 + 4x \times 3$

3 gets cancelled, gives

$(800 + 3x + 3y) : (1600 + 12x + 2y) : (2000 + 6x + 3y)$

Put x = 200 gives

$1400 + 3y : 4000 + 2y : 3200 + 3y$

Now given

$(4000 + 2y) / (1400 + 3y + 4000 + 2y + 3200 + 3y) = 66/153$

$(2000 + y) / (4300 + 4y) = 22/51$

Solve, y = Rs 200

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So now the total investment is— $(800+3x+3y) + (1600+12x+2y) + (2000+6x+3y) = (4400 + 21x + 8y)$

put  $x = 200$ ,  $y = 200$ , total investment = Rs 10,200

**49. D**

800, 1600, 2000 as it is for 3 months, and then for next 9 months  $x$ ,  $4x$  and  $2x$

So ratio of profit share – A : B : C is

$800*3 + 200*9 : 1600*3 + 800*9 : 2000*3 + 400*9$

$7 : 20 : 16$

So profit share of A =  $\frac{7}{43} * 19350 = \text{Rs } 3150$

**50. A**

New investments –  $3z$ ,  $2z$ , and  $2z$

Investment of A =  $(800+3x+2z)$ , B =  $(1600+12x+4z)$  and C =  $(2000+6x+1z)$

Put  $x = 200$

A =  $1400+2z$ , B =  $4000+4z$ , C =  $3200+1z$

Now given  $(1400+2z + 4000+4z + 3200+1z)/3 = 3100$

Solve,  $z = \text{Rs } 100$

So total investment for quarter 3 =  $2z+4z+z = 7z = \text{Rs } 700$

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**1. Number of students in Arts and science faculties in an institute are in the ratio of 5 : 8 respectively. If 150 more students join arts faculty, while 80 more students join science faculty, the respective ratio becomes 3 : 4. Originally what was the total number of students in both faculties together?**

- a. 1200
- b. 1400
- c. 1150
- d. Cannot be determined
- e. None of these

**2. An amount of money is divided among P, Q and R in ratio of 3: 5: 7, respectively. If the amount received by R is Rs. 4000 more than the amount received by Q, what will be the total amount received by P and Q together?**

- a. Rs. 8000
- b. Rs. 12000
- c. Rs. 16000
- d. Cannot be determined
- e. None of these

**3. A sum of money is divided among A, B, C and D in the ratio 2 : 3 : 7 : 11. If the share of C is Rs 2755**

**more than A, then the sum of money by B and D together is?**

- a. Rs. 4408
- b. Rs. 5510
- c. Rs. 6612
- d. Rs. 7714
- e. None of these

**4. The sides of a triangle are in the ratio  $1/2:1/3:1/4$  and its perimeter is 104 cm. The length of the longest side is (in cm)**

- a. 26
- b. 32
- c. 48
- d. 52
- e. None of these

**5. In a company, ratio of male to female employees 7 : 3 and the monthly salary of a male employee is 60% of the total number of employees and monthly salary of a female employee is 90% salary of a male employee. If the total salary of male and female employee is Rs.5238000 then find the number of employees in the company.**

- a. 3000

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- b. 4000
- c. 3250
- d. 3150
- e. None of these

**6. The ratio of the number of students studying in school A, B and C is 5: 8: 4, respectively. If the number of students studying in each of the school is increased by 20% , 25% and 30% respectively, what will be the new respective ratio of the students in schools A, B and C?**

- a. 13:25:15
- b. 20:25:13
- c. 15:25:13
- d. Cannot be determine
- e. None of these

**7. 360 is contained in a box. The box has 1 rs, 50 paise and 25 paise coins in the ratio of 2:3:4. Find the total number of 25 paise and 50 paise coins.**

- a. 570
- b. 640
- c. 560
- d. 520
- e. None of these

**8. 20 boys and 25 girls form a group of social workers. During their membership drive, the same number of boys and girls joined the group (e. g. If 7 boys joined, 7 girls joined). How many members does the group have now, if the ratio of boys to girls is 7 : 8?**

- a. 75
- b. 65
- c. 70
- d. 60
- e. None of these

**9. A plot has to be divided among A , B and C in the ratio 2 : 3 : 5 respectively. If the area of plot received by C is 6000 m<sup>2</sup> more than the area of plot received by B, then find the total area of plot received by A and B.**

- a. 15000 m<sup>2</sup>
- b. 30000 m<sup>2</sup>
- c. 10000 m<sup>2</sup>
- d. 13000 m<sup>2</sup>
- e. None of these

**10. The sides of a rectangle are in the ratio 2: 3 and its area is 486sq.m. Find the perimeter of the rectangle.**

- a. 95 m
- b. 90 m
- c. 105 m
- d. 100 m
- e. None of these

**11. The cost of diamond varies directly as the square of its weight. A diamond broke into four pieces with weights in the ratio 1 : 2 : 3 : 4. if the loss in the total value of the diamond was Rs. 70,000. The price of the original diamond was?**

- a. Rs. 100000

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- b. Rs. 140000
- c. Rs. 150000
- d. Rs. 175000
- e. None of these

**12. A sum of money is divided among A, B, C and D in the ratio of 3:4:9:10 respectively. If the share of C's is Rs. 2850 more than the share of B, then what is the total amount of money of A and D together?**

- a. Rs. 5676
- b. Rs. 6192
- c. Rs. 6708
- d. Rs. 7224
- e. None of these

**13. A bag contains Rs.1, 50 paise and 25 paise coins in the ratio of 4 : 3 : 2. If the total value is Rs.30, how many 25 paise coins are present in the bag?**

- a. 5 coins
- b. 10 coins
- c. 30 coins
- d. 20 coins
- e. None of these

**14. A, B and C are partners of a company. During a particular year A received one-third of the profit. B received one-fourth of a profit and C received the remaining Rs.5000. How much did A receive?**

- a. Rs.5000
- b. Rs.4000
- c. Rs.3000
- d. Rs.1000

- e. None of these

**15. Niki & Sonu started a business with initial investment of Rs 1300 and Rs 1500 respectively. After 5 months, Niki added Rs 200. After 4 months, Sonu added Rs 500 and after another 3 months, Sonu added Rs 1000. If at the end of the year, they earned the profit of Rs 35200. Calculate Niki's share of profit-**

- a. 14600
- b. 13600
- c. 13000
- d. 15600
- e. None of these

**16. A man spends Rs.1810 for buying bed sheets at Rs.200 each and pillows at Rs.70 each. What will be the ratio of bed sheets to pillows when maximum numbers of bed sheets are bought?**

- a. 3:8
- b. 8:3
- c. 9:1
- d. 1:9
- e. None of these

**17. An amount of money is to be divided among P, Q and R in the ratio of 3:5:7 respectively. If the amount received by R is Rs.4000 more than the amount received by Q, what will be the total amount received by P and Q together?**

- a. Rs.8000
- b. Rs.12000

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c. Rs.16000

d. Cannot be determined

e. None of these

**18. If x runs are second by A, y runs by B and z runs by C, then  $x : y = y : z = 3 : 2$ . If total number of runs scored by A, B and C is 342, the runs scored by each would be respectively**

a. 144, 96, 64

b. 162, 108, 72

c. 180, 120, 80

d. 189, 126, 84

e. None of these

**19. Deepak, Deepika, Dheeraj enter into a partnership with share in the ratio  $7/2:4/3:6/5$ . After 4 months, Deepak increases his share by 50%. If the total profit at the end of one year be 43200, then Dheeraj's share in the profit is ?**

a. 4200

b. 3686

c. 7200

d. 8640

e. None of these

**20. Equal quantities of three mixtures of milk and water are mixed in the ratio of 1:2, 2:3 and 3:4. The ratio of water and milk in the mixture is?**

a. 193:122

b. 122:193

c. 61:97

d. 137:178

e. None of these

**21. A box has 1 rupee, 50 paisa and 25 paisa coin in the ratio 3 : 2 : 5 worth Rs. 252. The number of 25 paisa coins in the box is?**

a. 96

b. 144

c. 240

d. 48

e. None of these

**22. An outgoing batch of students wants to gift books worth Rs 4,200 to their teachers. If the boys, offer to pay 50% more than the girls and an external sponsors gives three times the boy's contribution, then how much should the boys donate?**

a. Rs 600

b. Rs 840

c. Rs 900

d. Rs 1,200

e. None of these

**23. In a cricket match there are three types of tickets A, B and C each costing Rs. 1000, Rs. 500 and Rs. 200 respectively. The ratio of ticket sold of category A, B and C is 3 : 2 : 5. If the total collection from selling the tickets is Rs. 2.5 crore. Find the total number of tickets sold?**

a. 5000

b. 4800

c. 50000

d. 52000

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e. None of these

**24. 180 sweets are divided among friends A, B, C and D in which B and C are brothers also such that sweets divided between A and B are in the ratio 2 : 3, between B and C in the ratio 2 : 5 and between C and D in ratio 3 : 4. What is the number of sweets received by the brothers together?**

a. 78

b. 84

c. 92

d. 102

e. 88

**25. A bag contains Rs. 102 in the form of rupees, 50 paise and 10 paise coins in the ratio 3 : 4 : 10. The number of 10 paise coins is?**

a. 340

b. 60

c. 80

d. 170

e. None of these

**26. The ratio of males and females in a city is 7 : 8 respectively and the percentage of children among males and females is 25% and 20% respectively. If the number of adult females in the city is 1, 56, 800. What is the total population?**

a. 245000

b. 367500

c. 396000

d. 271500

e. None of these

**27. A man leaves Rs. 8600 to be divided among 5 sons, 4 daughters and 2 nephews. If each daughter receives four times as much as each nephew and each son receives five times as much as each nephew, how much does each daughter receive?**

a. Rs. 100

b. Rs. 600

c. Rs. 800

d. Rs. 1000

e. None of these

**28. A man ordered a pairs of black socks and some pairs of brown socks. The price of a black socks is double that of a brown pair. While preparing the bill the clerk interchanged the number of black and brown pairs by mistake which increased the bill by 50%. The ratio of the number of black and brown pairs of socks in the original order was?**

a. 2 : 1

b. 1 : 4

c. 1 : 2

d. 4 : 1

e. None of these

**29. A sum of money is to be distributed among P, Q, and R in the ratio 6:19:7. If R gives Rs. 200 from his share to Q, the ratio of P, Q and R becomes 3:10:3, what is the total sum?**

a. Rs. 4800

b. Rs. 12800



c. Rs. 3200

d. Data inadequate

e. None of these

**30. In a college the ratio of boys to girls is 31:23 respectively . When 75 more girls join the college this ratio becomes 124:107. How many more girls should join the college to make the number of boys and girls equal?**

a. 75

b. 90

c. 60

d. 85

e. None of these

**31. The value of a diamond is directly proportional to the square of its weight. A diamond unfortunately breaks into three pieces with weights in the ratio 3:4:5 thus a loss of Rs.9.4 lakh is incurred. What is the actual value of diamond?**

a. 28.8 lakh

b. 13.5 lakh

c. 14.4 lakh

d. 18.8 lakh

e. None of these

**32. A canister holds 36 litres of mixture of milk and water in the ratio 3 : 1. 15 litres of milk is added to the canister. The new ratio of the mixture is:**

a. 12 : 5

b. 14 : 3

c. 7 : 4

d. 9 : 4

e. None of these

**33. Parthi, Thyagu and Kavin enter into a partnership. Parthi invests 5 times as much as Thyagu's investment and Thyagu invests  $\frac{3}{7}$ th of Kavin's investment. If the total profit at the end of the year is Rs. 112500, then find the share of Thyagu?**

a. Rs. 15000

b. Rs. 14000

c. Rs. 13500

d. Rs. 14500

e. None of these

**34. P, Q and R invested in the ratio of 6 : 5 : 9. After 5 months, Q invested the same amount as before but P and R withdraw  $\frac{2}{7}$ th and  $\frac{1}{3}$ rd of the initial investment respectively. Find the share of R, if the total profit at the end of the year is Rs. 108900?**

a. Rs. 35600

b. Rs. 41750

c. Rs. 37800

d. Rs. 39150

e. None of these

**35. A, B and C entered into a partnership by investing in the ratio of 4 : 2: 3. At the end of the year, the total profit is in the ratio of 12 : 4 : 9. Find the ratio of period of time they invested in the business?**

a. 3 : 2 : 3

b. 5 : 2 : 4

c. 2 : 5 : 3

d. 7 : 4 : 5

e. None of these

**36. P, Q and R enter into a business by investing in the ratio of 4 : 7 : 9. After 6 months, R withdraw half of his capital. The initial investment of P is Rs. 28000. If the total profit at the end of the year is Rs. 88750, then find the share of Q?**

a. Rs. 21000

b. Rs. 27500

c. Rs. 35000

d. Rs. 30500

e. None of these

**37. Akash, Prithvi and Chitra started the business by investing in the ratio of 7 : 5 : 6. If 20% of the profit goes to charity, then the remaining will be shared by three of them. The share of Prithvi is Rs. 32000. Find the total profit?**

a. Rs. 126000

b. Rs. 132000

c. Rs. 156000

d. Rs. 144000

e. None of these

**38. Praveen and Raghav started a business by investing Rs. 24000 and Rs. 36000 respectively. Praveen is a working partner and Raghav is a sleeping partner in a business. Praveen receives 10 % of profits for managing the business. Find the share**

**of Praveen, if the total profit at the end of the year is Rs. 50000?**

a. Rs. 24000

b. Rs. 21000

c. Rs. 23000

d. Rs. 27000

e. None of these

**39. A starts a business with a capital of Rs. 25000. B joins the business 5 months after the start of the business and C joins the business after 8 months. At the end of the year their respective shares is in ratio of 30: 21: 16. What is the sum of amount invested by B and C together?**

a. Rs. 70000

b. Rs. 68000

c. Rs. 74000

d. Rs. 65000

e. None of these

**40. P, Q and R started a business by investing Rs. 27000, Rs. 35000 and Rs. 42000 respectively. After 6 months, P withdraws half of his investment but Q invested 20 % of initial investment more. Find the share of R, if the total profit at the end of the year is Rs. 84630?**

a. Rs. 31750

b. Rs. 35280

c. Rs. 33560

d. Rs. 30270

e. None of these

**41. Rahul, Vinay and Prabhu started a business by investing in the ratio of 4: 7: 9. After 5 months, Rahul invested Rs. 15000 more and after 4 months, Vinay invested Rs. 10000 more. At the end of the year, their profits are in the ratio of 39: 58: 72. Find the initial investment of Vinay?**

- a. Rs. 65000
- b. Rs. 72000
- c. Rs. 78000
- d. Rs. 70000
- e. None of these

**42. A, B and C entered into a partnership by investing Rs. 30000, Rs. 25000 and Rs. 40000 respectively. After 4 months, A withdraws two-fifth of the amount and B invested Rs. 15000 more. And after 3 months C withdraws three-fifth of the amount. Find the total profit at the end of the year, if the share of B is Rs. 70000?**

- a. Rs. 174000
- b. Rs. 188000
- c. Rs. 172000
- d. Rs. 164000
- e. None of these

**43. Arun, Kathir and Manoj entered into a partnership to construct a building by investing in the ratio of 4 : 6 : 7. After one year, Arun invested Rs. 80000 more and after one year, Manoj invested Rs. 120000 more. At the end of 3 years, their profits are**

**shared in the ratio of 28 : 18 : 33. Find the initial investment of Kathir?**

- a. Rs. 45000
- b. Rs. 40000
- c. Rs. 55000
- d. Rs. 60000
- e. None of these

**44. A, B and C started a business by investing Rs. 15000, Rs. 18000 and Rs. 22000 respectively. After 3 months, A invested 20 % more than the initial investment and B invested Rs. 2000 more. And After 4 months, C withdraws Rs. 7000. Find the total profit at the end of the year, if the share of B is Rs. 58500?**

- a. 154000
- b. 157500
- c. 167500
- d. 145600
- e. 128500

**45. P, Q and R started a business with an investment of 1500, 1750 and 2250 respectively. After three months P increases his capital by 15%, Q decreases by 10% and for last three months all of them investment Rs.1000 more. Find the profit earned by R at the end of the year if the total profit is 52710**

- a. 24000
- b. 21000
- c. 21500
- d. 13500
- e. None of these

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**46. Kishore, Krishna & kavin enter into a car business. Kishore invests some money at the beginning. Krishna invests thrice of kishore investment for 8 months & Kavin invests 4 times of kishore investment for 10 months. If the annual profit be Rs.38000. Kavin's share is?**

- a. Rs. 10000
- b. Rs. 20000
- c. Rs. 30000
- d. Rs. 40000
- e. None of these

**47. Keerthi and her friend kavi invested in the ratio 7:5 in a business. If 16% of the profit is given to charity and Keerthi's share is Rs.2352 then what will be the total profit ?**

- a. Rs.1600
- b. Rs.2400
- c. Rs.3600
- d. Rs.4800
- e. None of these

**48. X started a hotel business in 2014 by investing Rs.25,000. She invested Rs. 10,000 as additional amount in 2015 and her friend Y joined her with an amount of Rs.35000. X invested another Rs. 10,000 in 2016 and Z joined them with Rs. 35,000. At the end of these 3 years, they earned a profit of Rs. 1,50,000. Find Y's share?**

- a. Rs.20,000
- b. Rs.30,000

- c. Rs.40,000
- d. Rs.50,000
- e. None of these

**49. P, Q and R enter into a partnership with a capital of Rs.360, Rs.180 and Rs.240 respectively. After 3 months all of them increased 10% of their capital. And After another 3 months, all they reduced by 20% of their capital. Find the total profit if Q received two-third of total profit**

- a. Rs.240
- b. Rs.150
- c. Rs.280
- d. Data insufficient
- e. None of these

**50. A began a small business by investing a certain amount of money. After four months from the start of business, 'B' joins the business with an amount which is Rs.6000 less than A's initial investment. 'c' joins the business after seven months from the start of the business with an amount which is 2000 less than A's initial investment. At the end of the year total investment reported was Rs.1,42,000. What will be A's share if B received Rs.8000 as profit share?**

- a. 48000
- b. 46500
- c. 46000
- d. 42000
- e. None of these

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**Answer with Solution**

**Solution (1-50)**

**1. E**

Let the original number of students in arts and science faculties be  $5x$  and  $8x$  respectively.

According to the question,

$$(5x + 150)/(8x + 80) = 3/4$$

$$24x + 240 = 20x + 600$$

$$4x = 360$$

$$\Rightarrow x = 90$$

$$\text{Original number of students} = 5x + 8x = 13x$$

$$= 13 \times 90 = 1170$$

**2. C**

$$\text{Ratio} = 3: 5: 7 = 3x: 5x: 7x$$

$$R = 4000 + Q$$

$$R - Q = 4000$$

$$X(7 - 5) = 4000$$

$$X = 2000$$

$$P = 3 * 2000 = 6000$$

$$Q = 5 * 2000 = 10000$$

$$R = 7 * 2000 = 14000$$

$$\text{Total amount received by P and Q} = 6000 + 10000 =$$

$$\text{Rs.16000}$$

**3. D**

Ratio of money divided among A, B, C and D is  $2 : 3 : 7 : 11$

Let  $x$  be the common factor in the given ratio,

$$2x : 3x : 7x : 11x$$

Difference in ratio value between C and A

$$\Rightarrow 7x - 2x = 5x$$

$$\text{Actual difference} = 2755$$

$$X = 551$$

$$\text{Ratio of B and D together} = 3x + 11x = 14x$$

$$\text{Total amount of B and D together} = 14 * 551$$

$$= \text{Rs. 7714}$$

**4. C**

The ratio between sides of triangle is  $1/2: 1/3: 1/4$

$$\text{Let, first side}/2 = \text{second side}/3 = \text{third side}/4 = x$$

$$\Rightarrow x/2 + x/3 + x/4 = 104$$

$$\Rightarrow 6x + 4x + 3x = 12 * 104$$

$$\Rightarrow 13x = 12 * 104$$

$$\Rightarrow x = 96$$

$$\text{Longest side is } x/2 = 48$$

**5. A**

Total number of male and female are  $7x$  and  $3x$

$$\text{Salary of a male} = 60\% \text{ of } 10x = 6x$$

$$\text{Salary of a female} = 90\% \text{ Salary of a male} = 90\% \text{ of } 6x =$$

$$5.4x$$

$$\text{Total salary} = 7x * 6x + 3x * 5.4x = 5238000$$

$$58.2x^2 = 5238000$$

$$X^2 = 90000$$

$$X = 300$$

$$\text{Total employees} = 10x = 10 * 300 = 3000$$

**6. C**

The ratio of the number of students studying in school A, B and C is  $5: 8: 4$ , respectively.

New value according to the question

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$$5 * 120/100 : 8 * 125/100 : 4 * 130/100$$

$$\Rightarrow 60: 100: 52 = 15 : 25 : 13$$

**7. C**

Total amount=360

Ratio=> 2 :3 :4

$$2x \ 3x \ 4x$$

$$\Rightarrow 2x*1 + 3x*(50/100) + 4x*(25/100) = 360$$

$$\Rightarrow 200x + 150x + 100x = 3600$$

$$\Rightarrow 450x = 36000$$

$$\Rightarrow x = 80$$

The no of 25paise and 50 paise coins are,  $3x + 4x = 7x = 560$

**8. A**

Let X boys and x girls joined the group.

According to the question,

$$(20 + x)/(25 + x) = 7/8$$

$$\Rightarrow 160 + 8x = 175 + 7x$$

$$\Rightarrow x = 15$$

Total number of the members in the group

$$= 25 + 20 + 30 = 75$$

**9. A**

Let the area of plot received by A, B and C be  $2x$ ,  $3x$  and  $5x$  respectively.

As per statement,

$$3x + 6000 = 5x$$

On simplification,

$$X = 3000$$

Area of plot received by A and B together,

$$= 2x + 3x$$

$$= 5x$$

$$= 5 * 3000$$

$$= 15000 \text{ m}^2$$

**10. B**

Let  $2x$  and  $3x$  be the sides of the rectangle

We know that, area of rectangle =  $l * b$

$$2x * 3x = 486$$

$$6x^2 = 486$$

$$x^2 = 81$$

$$x = 9$$

Therefore, length =  $2x = 2 * 9 = 18\text{m}$

Breadth =  $3x = 3 * 9 = 27\text{m}$

Therefore, perimeter of the rectangle =  $2(l + b)$

$$= 2(18 + 27)$$

$$= 90 \text{ m}$$

**11. A**

Let the weight of the pieces of diamond be  $x$ ,  $2x$ ,  $3x$ ,  $4x$

Total weight of diamond =  $x + 2x + 3x + 4x = 10x$ .

Price  $\propto$  (weight)<sup>2</sup>

$\Rightarrow$  Price =  $k(\text{weight})^2$ ; Where, K is constant

Original price =  $k(10x)^2$

Price of pieces =  $(kx^2 + 4kx^2 + 9kx^2 + 16kx^2) = 30kx^2$

Loss in price =  $100kx^2 - 30kx^2 = 70kx^2$

which is given as 70,000.

$$70kx^2 = 70000$$

$$\Rightarrow kx^2 = 1000$$

Original price =  $100kx^2 = 100 * 1000 = 100000$

**12. E**

Ratio of A, B, C and D is 3:4:9:10 respectively,

According to the question,

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$$C = 2850 + 4x$$

$$\Rightarrow 9x = 2850 + 4x$$

$$\Rightarrow 5x = 2850$$

$$\Rightarrow x = 570$$

$$\Rightarrow \text{Total amount of A and D together} = 3x + 10x = 13x = 13 * 570 = \text{Rs. } 7410$$

**13. B**

$$\text{Let number of Rs.1 coins} = 4x$$

$$\text{And number of 50 paise coins} = 3x$$

$$\text{And number of 25 paise coins} = 2x$$

$$\text{Therefore, total value of the coins} = 1 * 4x + 0.5 * 3x + 0.25 * 2x$$

$$\text{Therefore, } 30 = 4x + 1.5x + 0.5x = 6x$$

$$\Rightarrow x = 5$$

$$\text{Hence, Number of 25 paise coins present in the bag} = 2x = 2 * 5 = 10 \text{ coins}$$

**14. B**

$$\text{Let the total profit} = \text{Rs. } A$$

$$\text{Therefore, A's share} = A/3$$

$$\text{B's share} = A/4$$

$$\text{Therefore, C's share} = A - A/3 - A/4$$

$$5000 = A - 7A/12 = 5A/12$$

$$\Rightarrow A = 12000$$

$$\text{Hence, A's share} = A/3 = 12000 / 3 = \text{Rs. } 4000$$

**15. B**

$$\text{Niki: Sonu} = 1300*5 + 1500*7: 1500*4 + 2000*3 + 3000*5$$

$$= 17000: 27000 = 17: 27$$

$$\text{Niki's share} = 17*35200/44 = 13600$$

**16. B**

The man can't purchase more than 8 bedsheets

$$\text{So cost of 8 bedsheets} = 8 \times 200 = 1600$$

$$\text{Remaining amount} = 1810 - 1600 = 210$$

$$\text{And in Rs.210 the man can purchase } 210/70 = 3 \text{ pillows}$$

$$\text{Required ratio} = 8:3$$

**17. C**

$$\text{Difference of amount received by R and Q} = 7 - 5 = 2$$

$$\text{Total amount received by P and Q} = 3 + 5 = 8$$

$$\text{And } 2 = \text{Rs. } 4000$$

$$\text{Hence } 8 = 4000/2 * 8 = \text{Rs. } 16000$$

**18. B**

$$x : y = 3 : 2 = 9 : 6$$

$$y : z = 3 : 2 = 6 : 4$$

$$\therefore x : y : z = 9 : 6 : 4$$

$$9a + 6a + 4a = 342 \Rightarrow 19a = 342 \Rightarrow a = 342 / 19 = 18$$

$$A = 18 \times 9 = 162$$

$$B = 18 \times 6 = 108$$

$$C = 18 \times 4 = 72$$

**19. C**

$$\text{Given ratio} = 7/2:4/3:6/5 = 105 : 40 : 36$$

Ratio of investments (i.e. ratio of profit) =

$$[105 \times 4 + (150 \% \text{ of } 105) \times 8] : (40 \times 12) : (36 \times 12) =$$

$$1680 : 480 : 432 = 35 : 10 : 9$$

$$\Rightarrow \text{Dheeraj's share in the profit} = 9/(35+10+9) \times 43200 = 7200$$

**20. A**

$$\text{Proportion of milk in the mixture} = A : B : C = 1/3 : 2/5 : 3/7$$

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$$35/105 : 42/105 : 45:105$$

Quantity of milk in new mixture =  $35 + 42 + 45 = 122$   
litre

Quantity of water in new mixture =  $(105 \times 3) - 122 =$   
193 litre

Therefore, the ratio of water is to milk = 193 : 122

**21. C**

Let the ratio of coins be  $3x : 2x : 5x$ .

Then at  $x = 1$

Rupee Rs. 1 50p 25p

Coins 3 2 5

Sum 3 1 1.25

Rs.  $5.25 \times 48 = 252$

So, 25 paisa coins,  $5 \times 48 = 240$

**22. C**

The ratio of the share girls: boys: sponsors =  $1:1.5:4.5$

So the proportion to boy's share =  $1.5/7$

Hence, the boys would donate =  $1.5/7 \times 4200 = \text{Rs } 900$

**23. C**

Number A : B : C =  $3 : 2 : 5$

Let A =  $3x$ , B =  $2x$ , C =  $5x$

Then  $(1000 \times 3x) + (500 \times 2x) + (200 \times 5x) =$   
25000000

$5000x = 25000000$

$x = 5000$

Total tickets =  $3x + 2x + 5x = 10x$

=  $10 \times 5000 = 50000$

**24. B**

$A/B = N1/D1$   $B/C = N2/D2$   $C/D = N3/D3$

$$A : B : C : D = N1 \cdot N2 \cdot N3 : D1 \cdot N2 \cdot N3 : D1 \cdot D2 \cdot N3 : D1 \cdot D2 \cdot D3$$

$$A/B = 2/3 \quad B/C = 2/5 \quad C/D = 3/4$$

$$A : B : C : D$$

$$2 \cdot 2 \cdot 3 : 3 \cdot 2 \cdot 3 : 3 \cdot 5 \cdot 3 : 3 \cdot 5 \cdot 4$$

$$4 : 6 : 15 : 20$$

$$B \text{ and } C \text{ together} = [(6+15)/(4+6+15+20)] \cdot 180 = 84$$

**25. D**

Ratio of the number of coins of 1 rupee : 50 paisa : 10  
paisa =  $3 : 4 : 10$

Ratio of total values of coins of 1 rupee : 50 paisa : 10  
paisa =  $(100 \times 3) : (50 \times 4) : (10 \times 10)$   
=  $300 : 200 : 100 = 3 : 2 : 1$

Total value of 10 paisa coins is Rs. 102  
=  $[1 / (3 + 2 + 1)] \times \text{Rs. } 102 = \text{Rs. } 102 / 6$   
= Rs. 17 = 1700 paisa

No. of 10 paisa coins =  $1700 / 10 = 170$

**26. B**

Let no. of males and females be  $7x$  and  $8x$ .

Percentage of children among females = 20%

So, 80% of females are adults,

$$(80 / 100)(8x) = 156800$$

$$x = 156800 \times (100 / (80 \times 8)) = 24500$$

$$\text{Total population} = 7x + 8x = 15x = 15(24500) = 367500$$

**27. C**

Let each nephew receives Rs.  $x$

Son : Daughter : Nephew =  $5x : 4x : x$

5 sons : 4 daughters : 2 Nephews =  $25x : 16x : 2x$

And  $25x + 16x + 2x = \text{Rs. } 8600$



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$$43x = \text{Rs. } 8600$$

$$x = \text{Rs. } 200$$

$$\text{Required answer} = 4 \times 200 = \text{RS. } 800$$

**28. B**

$$\text{Number of brown socks} = x$$

$$\text{Price of brown socks} = \text{Rs. } y \text{ per pair}$$

$$\text{Price of black socks} = \text{Rs. } 2y \text{ per pair}$$

$$4y + x \times 2y$$

$$= (150 / 100) (4 \times 2y + xy) = 4 + 2x = 3/2 (8 + x)$$

$$= 8 + 4x = 24 + 3x \Rightarrow x = 24 - 8 = 16$$

$$\text{Required ratio} = 4 : 16 = 1 : 4.$$

**29. E**

$$\text{Let the shares of P, Q and R be } 6x, 19x \text{ and } 7x.$$

$$\text{By given condition, R's new share} = 7x - 200$$

$$\text{Q's new share} = 19x + 200$$

$$\text{New ratio} = 6x : 19x + 200 : 7x - 200 = 3 : 10 : 3$$

$$P : R = 6x : 7x - 200 = 3 : 3$$

$$6x = 7x - 200$$

$$x = 200$$

$$\text{Total sum} = 6x + 19x + 7x = 32x = 6400$$

**30. D**

ATQ,

$$\frac{31x}{23x + 75} = \frac{124}{107}$$

$$\Rightarrow x = 20$$

$$\Rightarrow \text{No. of boys} = 31 \times 20 = 620$$

$$\& \text{ no. of Girls} = 23 \times 20 + 75 = 535$$

$$\therefore \text{No. of more Girls required} = 620 - 535 = 85$$

**31. C**

$$\text{The ratio of broken parts by weight} = 3x : 4x : 5x$$

$$\text{Therefore value of broken parts of diamond} = (3x)^2 +$$

$$(4x)^2 + (5x)^2 = 50x^2$$

$$\text{The value of original diamond} = (3x + 4x + 5x)^2 =$$

$$144x^2$$

$$\text{Therefore, loss in value} = 144x^2 - 50x^2 = 9.4 \text{ lakh}$$

$$94x^2 = 940000$$

$$x^2 = 10000$$

$$\text{Hence the actual value of the diamond} = 144x^2 = 144 \times 10000$$

$$= 14.4 \text{ lakh}$$

**32. B**

$$\text{Milk : water} = 3 : 1$$

$$\text{Quantity of Milk} = 36 \times \frac{3}{4} = 27 \text{ litres}$$

$$\text{Quantity of water} = 36 \times \frac{1}{4} = 9 \text{ litres}$$

$$\text{When 15 litres of milk is added then,}$$

$$\text{Milk} = 27 + 15 = 42 \text{ litres}$$

$$\text{Required ratio} = 42 : 9 = 14 : 3$$

**33. C**

$$\text{The investment of Parthi and Thyagu} = 5 : 1$$

$$\text{Thyagu's investment} = (3/7) \times \text{Kavin's investment}$$

$$\text{The investment of Thyagu and Kavin} = 3 : 7$$

$$\text{The investment of Parthi, Thyagu and Kavin} = 15 : 3 : 7$$

$$\text{Here, the period is not given. So,}$$

$$\text{The ratio of investment} = \text{The ratio of profit}$$

$$\text{Total profit} = \text{Rs. } 112500$$

$$25\text{'s} = 112500$$

$$1\text{'s} = 4500$$

$$\text{The share of Thyagu} = 3\text{'s} = \text{Rs. } 13500$$

**34. D**

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The share of P, Q and R,

$$\Rightarrow [6*5 + 6*(5/7)*7] : [5*5 + 10*7] : [9*5 + 9*(2/3)*7]$$

$$\Rightarrow [30 + 30] : [25 + 70] : [45 + 42]$$

$$\Rightarrow 60 : 95 : 87$$

$$242's = 108900$$

$$1's = 450$$

$$\text{The share of R} = 87's = \text{Rs. } 39150$$

**35. A**

The ratio of investment = 4 : 2 : 3

The ratio of profit = 12 : 4 : 9

Ratio of investment \* Ratio of Period = The ratio of Profit

Ratio of Period = The ratio of Profit / Ratio of investment

According to the question,

$$\Rightarrow (12/4) : (4/2) : (9/3)$$

$$\Rightarrow 3 : 2 : 3$$

**36. C**

The investment ratio of P, Q and R = 4 : 7 : 9

The initial investment of P = Rs. 28000

$$4's = 28000$$

$$1's = 7000$$

Initial investment of Q = 49000

Initial investment of R = 63000

The share of P, Q and R

$$\Rightarrow [28000*12] : [49000*12] : [63000*6 + 31500*6]$$

$$\Rightarrow 336000 : 588000 : 567000$$

$$\Rightarrow 16 : 28 : 27$$

Total profit = Rs. 88750

$$71's = 88750$$

$$1's = 1250$$

$$\text{The share of Q} = 28's = 28*1250 = \text{Rs. } 35000$$

**37. D**

Investment ratio = 7 : 5 : 6

Prithvi's share = 32000

$$5's = 32000$$

$$1's = 6400$$

$$18's = 6400*18 = 115200$$

80 % of total profit = 115200

$$(80/100)*\text{total profit} = 115200$$

$$\text{Total profit} = 115200*(100/80) = \text{Rs. } 144000$$

**38. C**

The share of Praveen and Raghav

$$\Rightarrow 24000 : 36000$$

$$\Rightarrow 2 : 3$$

Praveen receives 10 % of profits for managing the business.

$$\Rightarrow 50000*(10/100) = 5000$$

$$\text{Remaining} = 50000 - 5000 = 45000$$

$$5's = 45000$$

$$1's = 9000$$

$$\text{The share of Praveen} = 5000 + 18000 = \text{Rs. } 23000$$

**39. A**

Let the initial investment of B and C be x and y,

Ratios of profits = >

$$[25000*12] : [7x] : [4y] = 30 : 21 : 16$$

$$30's = 25000*12$$

$$1's = 10000$$

$$21's = 210000$$

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$$16's = 160000$$

Capital of B

$$=> 7x = 210000$$

$$=> x = \text{Rs. } 30000$$

Capital of C

$$=> 4y = 160000$$

$$=> y = 160000/4 = \text{Rs. } 40000$$

$$\text{Total Money invested by B and C} = 30000 + 40000 = \text{Rs. } 70000$$

**40. B**

The share of P, Q and R

$$=> [27000*6 + 13500*6]: [35000*6 + 35000*(120/100)*6]: [42000*12]$$

$$=> 243000: 462000: 504000$$

$$=> 81: 154: 168$$

$$403's = 84630$$

$$1's = 210$$

$$\text{The share of R} = 168's = \text{Rs. } 35280$$

**41. D**

The share of Rahul, Vinay and Prabhu

$$[4x*5 + (4x + 15000)*7]: [7x*9 + (7x + 10000)*3]: [9x*12] = 39: 58: 72$$

$$(20x + 28x + 105000): [63x + 21x + 30000]: [108x] = 39: 58: 72$$

$$(48x + 105000): (84x + 30000): 108x = 39: 58: 72$$

$$(84x + 30000)/108x = (58/72)$$

$$84x + 30000 = 87x$$

$$3x = 30000$$

$$X = 10000$$

$$\text{Initial investment of Vinay} = 7x = \text{Rs. } 70000$$

**42. A**

The share of A, B and C

$$=> [30000*4 + 30000*(3/5)*8]: [25000*4 + 40000*8]: [40000*7 + 40000*(2/5)*5]$$

$$=> 264000: 420000: 360000$$

$$=> 22: 35: 30$$

$$35's = 70000$$

$$1's = 2000$$

$$\text{Total profit} = 87's = 87*2000 = \text{Rs. } 174000$$

**43. D**

The share of Arun, Kathir and Manoj

$$[4x*1 + (4x + 80000)*2]: [6x*3]: [7x*2 + (7x + 120000)*1] = 28: 18: 33$$

$$[4x + 8x + 160000]: [18x]: [14x + 7x + 120000] = 28: 18: 33$$

$$(12x + 160000): (18x): (21x + 120000) = 28: 18: 33$$

$$=> (12x + 160000)/(18x) = (28/18)$$

$$=> 12x + 160000 = 28x$$

$$=> 160000 = 28x - 12x$$

$$=> 16x = 160000$$

$$=> x = 10000$$

$$\text{Initial investment of Kathir} = 6x = \text{Rs. } 60000$$

**44. C**

The share of A, B and C

$$=> [15000*3 + 15000*(120/100)*9]: [18000*3 + 20000*9]: [22000*7 + 15000*5]$$

$$=> 207000: 234000: 229000$$

$$=> 207: 234: 229$$

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The share of B = Rs. 58500

234's = 58500

1's = 250

Total profit = 670's = Rs. 167500

**45. B**

Profit ratio =  $[1500 \times 3 + 1500 \times 115/100 \times 6 + 2500 \times 3]$ :

$[1750 \times 3 + 1750 \times 90 \times 6/100 + 2750 \times 3]$ :  $[2250 \times 9 + 3250 \times 3]$

= 22350: 22950: 30000

= 149: 153: 200

=  $52710/502 \times 200$  = Rs. 21000

**46. B**

Let Kishore's investment be Rs. x

Then ratio of capitals,

=  $(x \times 12) : (3x \times 8) : (4x \times 10)$

=  $12x : 24x : 40x$

= 6:12:20

= 3:6:10

Kavin's share = Rs.  $(38000 \times 10/19)$

= Rs.  $(2000 \times 10)$

= Rs. 20000

Hence required answer is Rs. 20000.

**47. D**

Let the total profit be Rs. 100

16% of profit is for charity,

Keerthi's share = Rs.  $[(100-16) \times (7/12)]$

=  $[84 \times (7/12)]$

= Rs. 49

If Keerthi's share is Rs. 49 then the total profit = Rs. 100.

If Keerthi's share is Rs. 2352 then total profit =

Rs.  $[(100/49) \times 2352]$

= Rs.  $100 \times 48$

= Rs. 4800.

Hence the required answer is Rs. 4800

(or)

Keerthi and her friend Kavi invested in the ratio 7:5

7's = 2352

1's = 336

12's = 4032

84 % of profit = 4032

$(84/100) \times \text{Total profit} = 4032$

Total profit =  $4032 \times (100/84) = 4800$

**48. D**

X invested Rs. 25,000 for 12 months, Rs.  $(25000 + 10000)$

for 12 months and Rs.  $(25000 + 10000 + 10000)$  for 12 months.

i.e., she invested Rs. 25,000 for 12 months, Rs. 35000 for 12 months and Rs. 45000 for 12 months.

Y invested Rs. 35000 for 2 years;

i.e., Rs. 35000 for 24 months

And, Z invested Rs. 35000 for 1 year;

i.e., Rs. 35000 for 12 months.

Their investing ratio:

X: Y: Z =  $(25,000 \times 12 + 35000 \times 12 + 45000 \times 12) : (35000 \times 24) : (35000 \times 12)$

=  $(300000 + 420000 + 540000) : (840,000) : (420,000)$

= 1260000:840000:420000

= 126:84:42

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$$= 3:2:1$$

Total profit for 3 years = Rs.1,50,000

Therefore, Y's share = Rs.(1,50,000 x 2 / (3+2+1))

$$= \text{Rs.}(1,50,000 \times 2/6)$$

$$= \text{Rs.}50,000$$

**49. D**

The given data is insufficient to answer the question

**50. A**

A's amount x

$$\text{B's investment} = x - 6000$$

$$\text{C's investment} = x - 2000$$

$$12x + 8 * (x - 6000) + 5 * (x - 2000) = 142000$$

$$12x + 8x - 48000 + 5x - 1000 = 142000$$

$$25x = 142000 + 58000$$

$$X = (142000 + 58000) / 25$$

$$= 8000$$

Ratio of the profit = ratio of investment

$$12 * 8000 = 16000 : 30000$$

$$96:16 : 30 = 48:8:15$$

$$\text{Profit of B} = 8y = 8000$$

$$Y = 1000 ;$$

$$\text{A's Share} = 48000$$

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**Direction (1-5): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data given in the statements are sufficient to answer the question.**

**Read both statement and choose the most appropriate option**

- a. Only Statement I is sufficient to answer
- b. Only Statement II is sufficient to answer
- c. Either Statement I or Statement II are sufficient to answer.
- d. Neither Statement I nor Statement II are sufficient to answer.
- e. Both Statement I and Statement II are sufficient to answer.

**1. How many chocolate does Seetha has?**

- I. Abi has 10 chocolates which is five more than Geetha. Seetha has 2 chocolates more than Swetha, who has 2 more than Geetha.
- II. Swetha has more chocolates than Geetha but less than Abi, who has 10 chocolates.

**2. On which day does Arun took his leave?**

- I. Arun does not took his leave on Wednesday.
- II. Arun took his leave either on Monday or Thursday.

**3. Who among the following was oldest among A, B, C, D, E, F?**

- I. A is older than C but not older than B. D is not older than C.
- II. D was older than both E and F.

**4. P, Q, R, S, and T are the five persons in the group. How many persons are taller than T?**

- I. P is taller than Q, who was only shorter than P and T.
- II. R is shorter than P, who was shorter than T.

**5. On which floor does C lives? If A, B, C, D, E are living in a building. The lowermost floor of the building is numbered 1 its above floor numbered 2 and so on till the topmost floor of the building is numbered 5.**

- I. A lives one of the floor below D, who lives in topmost floor.

II. E lives two floors above C, who neither lives in third or second floor.

**Direction (Q.6-10): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data given in the statements are sufficient to answer the question. Read both statement and choose the most appropriate option**

- a. The data even in both statements I and II together are not sufficient to answer the question.
- b. The data in both statements I and II together are necessary to answer the question.
- c. The data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.
- d. The data either in statement I alone or in statement II alone are sufficient to the answer the question.
- e. The data in statement I alone are sufficient to answer the question while the data in statement II alone are not sufficient to answer the question.

**6. How many persons are standing between L and K in a straight line of 19 persons? (Note: All are standing in a straight line, facing north).**

- I. Y stands on the extreme left end of the line. Only five persons stand between Y and K. Only six persons stand between K and R. Only four persons stand between R and L.
- II. J stands exactly in the middle of the line. Only two persons stand between I and J. Only five persons stand between I and L. I stands to the left of L. K stands third to the left of J.

**7. Among six persons A, B, C, D, E and F standing around a circle, some of them are facing the centre while others are facing outside the centre. What is the position of A with respect to E?**

- I. C stands second to the right of E. E faces outside. C is an immediate neighbour of both D and B. F stands second to the left of D. D faces the same direction as E.
- II. Only two persons stand between B and E. Both B and E face outside. E is an immediate neighbour of both D and F. B is an immediate neighbour of both C and A. A is not an immediate neighbour of D.

**8. How is X related to N?**

- I. X is mother of J. T is married to Z. N is daughter of T. Z is brother of J.
- II. X is married to Y. Y is father of J. J is married to L. J is uncle of N. L has no siblings.

**9. Among mobiles R, S, T, U, V and W, which is the costliest?**

- I. T is costlier than only two mobiles. S is costlier than R but not the costliest. V is costlier than only W.

- II. R is cheaper than only two mobiles. V is costlier than W but cheaper than T. T is cheaper than R. S is cheaper than U.

**10. Who is the lightest amongst A, B, C, D and E?**

- I. D is heavier than C and lighter than A.  
II. B is heavier only than E.

**Directions (11-15): Each of the following questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and give answer.**

- a. if the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient in answer the question.  
b. if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.  
c. if the data in either in statement I alone or in statement II alone are sufficient to answer the question.  
d. if the data in both the statements I and II together are not sufficient to answer the question.  
e. if the data in both the statements I and II are together necessary to answer the question.

**11. Eight friends A, B, C, D, E, F, G and H are sitting around a circular table facing the center. Who is opposite to A?**

- I. D sits second to right of F and opposite to E. A is an immediate neighbor of B and C.  
II. G sits third to right of E, who sits second to right of A.

**12. Who among D, E, F, G, H and J got the highest marks in an exam?**

- I. D's marks was more than G and J and E's marks was less than that of F.  
II. E scored less than G. J scored more than G and H. No one scored marks between F and G or F and H.

**13. Among V, W, X, Y and Z, seated in a straight line facing south, who sits at the left extreme end of the row?**

- I. W sits second to right of V. Z is not immediate neighbor of Y.  
II. V sits third to left of Y. W sits on the immediate right of X.

**14. How is S related to E?**

- I. W is father of X and P is grandson of E, who is wife of W.  
II. G is mother of S and daughter in law of W.



**15. Among five friends P, Q, R, S and T having different heights, who is the tallest?**

- I. R is taller than only one friend. Only one friend is taller than T. P is not shortest.
- II. R is shorter than three persons. Only one person is taller than T. P is neither the tallest nor the shortest in the group. Q is the shortest in group.

**Directions (16-20): Each of the questions below consist of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and give answer**

- a. if the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.
- b. if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.
- c. if the data either in statement I alone or in statement II alone are sufficient to answer the question.
- d. if the data in both statement I and II together are not sufficient to answer the question.
- e. if the data in both statement I and II together are necessary to answer the question.

**16. On which date Siddharth leaves for Jaunpur in January month?**

- I. Siddharth takes leave for one week from his office in January month starting from 5th January.
- II. Siddharth mother correctly remembers that Siddharth leaves for Jaunpur after 5th but before 7th January.

**17. Five persons A, B, C, D and E are sitting around a circular table with all of them facing towards the center.**

**Who sits immediate left of B ?**

- I. A sits third to right of B. C sits third to right of A.
- II. B sits immediate left of C who sits second to left of A. D does not sit adjacent to B.

**18. What is code of “called”?**

- I. In certain language, “meeting had been called” is written as “sx vt bv mp” and “ they called every time” is written as “ bv ct fa jl “ .
- II. In certain language “you called every hour” is written as “ca bv jl ma”.

**19. Point S is in which direction with respect to point Y?**

- I. Point S is in north of Point X. Point X is in east of Point T. Point T is in north of point V which is west of Point Y.

- II. Point Y is west of Point X. Point X is in west of Point T which is north of V. Point V is east of Point S which is south of Point X.

**20. Five persons A, B, C, D and E are of different weight. Who is heaviest?**

- I. B is heavier than C and D but lighter than E who is not the heaviest.  
II. E is heavier than B and C but lighter than A.

**Directions (21-25): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and give answer.**

- a. if the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.  
b. if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.  
c. if the data either in statement I alone or in statement II alone are sufficient to answer the question.  
d. if the data given in both statements I and II together are not sufficient to answer the question.  
e. if the data in both statements I and II together are necessary to answer the question.

**21. Office X is in which direction with respect to Office Y?**

- I. X is to the east of Z, which is to the north of Y.  
II. W is to the east of Y and to the south of X.

**22. How is L related to N?**

- I. K is daughter of L, and N is daughter of M.  
II. K is mother of N, who is sister of O.

**23. Who among P, Q, R, S and T stood first in a class test?**

- I. Q is in the middle from either side and S is at the bottom according to their ranks.  
II. P and T are immediate neighbours of Q if they are made to sit according to their ranks.

**24. What is the code for 'running' in a certain code language?**

- I. In that code language 'ram running too fast' is written as 'po he chh to'.  
II. In that code language 'he is running very fast' is written as 'ha ni he ma po'.

**25. Among Sanjeev, Rajeev, Gautam, Ranjit, Amit and Mithilesh, who is on the immediate left of Gautam?**

- I. Gautam is sitting between Sanjeev and Amit. Amit is on the extreme right.
- II. Gautam is third to the right of Mithilesh and second to the left of Ranjit.

**Directions (26-30): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements. Give answer-**

- a. If the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.
- b. If the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.
- c. If the data either in statement I alone or in statement II alone are sufficient to answer the question.
- d. If the data in both statements I and II together are not sufficient to answer the question.
- e. If the data in both statements I and II together are necessary to answer the question.

**26. How is Ritika related to Ritesh?**

- I. Ritika who has two children is daughter of Radhika. Radhika has only one grandson named Ritesh.
- II. Paras who is brother of Ritika has only one child named Ridhi.

**27. Who stays at 4th floor of the building having 5 floors (1st is the bottommost floor and 5th is the topmost floor, also ground floor is empty)?**

- I. Madhuri stays on an odd-numbered floor.
- II. Akshay stays three floors above Madhuri.

**28. What is the distance between points X and Y?**

- I. Point P is 10 m west of point C. Point D is 5 m north of point X which is 5 m west of point C.
- II. Point D is equidistant from points X and Y.

**29. How is 'great' written in that code?**

- I. In a certain code, 'great are those days' is written as 'ki vo tu mpi' and 'those days were good' is written as 'ki fo mpi ta'
- II. In a certain code, 'many days passed' is written as 'ti mpi dis' and 'those good years' is written as 'ko ki ka'.

**30. On which day is Nikita's birthday?**

- I. Shruti remembers that Nikita's birthday falls in February. Preeti remembers that Nikita's birthday falls on either 29 or 30.
- II. Krish remembers that Nikita's birthday occurs in the last week of a month.

**Directions (31-35): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements. Give answer-**

- a. If the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.
- b. If the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.
- c. If the data either in statement I alone or in statement II alone is sufficient to answer the question.
- d. If the data even in both the statement I and II together are not sufficient to answer the question
- e. If the data in both statement I and II together are needed to answer the question.

**31. How many days did Mr. Bhatia take to complete his work?**

- I. His colleague Simran correctly remembers that Mr. Bhatia took more than five days but less than nine days to complete his work.
- II. His colleague Ankur correctly remembers that Mr. Bhatia took more than seven days but less than eleven days.

**32. How is Y related to J?**

- I. J is father of two children and husband of C, who is sister of D and D is Y's mother.
- II. Y is son of M, who is brother of C. J is husband of C.

**33. Is 'MORE' the word formed from these four letters?**

- I. The word starts with M. There is only one letter between E and O.
- II. There is only one letter between O and E. M is on the immediate left of O.

**34. J, K, L, M and N are sitting around a circular table, facing the centre. Who is on the immediate left of L?**

- I. J sits between K and N. L is on the immediate left of M, who is second to the left of J.
- II. K is second to the right of L, who is between N and M. J is on the immediate left of N.

**35. S, B, T, H, M and R are sitting around a circular table. S, B and Mare males while the rest are females.**

**Who are the neighbors of S?**

- I. T does not want any male as her neighbor and H does not want to a neighbor of S.
- II. M does not want any female as his neighbor and wants to sit to the immediate left of B.

**Directions (36-40): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements. Give answer-**

- a. if the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.
- b. if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.
- c. if the data in both statements I and II together are necessary to answer the question.
- d. if the data either in statement I alone or in statement II alone are sufficient to answer the question.
- e. if the data given in both statements I and II together are not sufficient to answer the question.

**36. How far is point A from point D?**

- I. Point A is 4m to the north of point B .Point C is 3m to the east of point A. Point D is to the west of point A such that points C, A and D form a straight line of 7m
- II. Point F is 3m to south of point D. Point C is 4m to the east of point A. Point A is 3m to the north of point B. Point A lies on the line formed by joining points C and D. Point D is 3m west of Point A.

**37. How many people are standing in a straight line? (Consider: All are facing north)**

- I. M stands third from the left end of the line. Only one person stands between M and O. P stands second to the right of O. P stands at one of the extreme lines
- II. Only two people stand between K and L. Only three people stands between L and O. Only one persons stands between O and P

**38. What does 'Zee' represent in a code language?**

- I. In that code language 'ah koj zee pig' mean ' can you take that '
- II. In that code language 'et zee lin ter' means ' you may come now'

**39. Among K, L, M, N, O and P each has different age, who is the youngest among them?**

- I. L is younger than only K, and P. N is neither the oldest nor the youngest
- II. M is older than N but not the oldest

**40. Which among P, Q, R, S and T is the smallest?**

- I. P is greater than or equal to R which is equal to Q and greater than or equal to S and T.
- II. S is equal to R and is not greater than Q. P is greater than Q.

**Directions (41-45): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements. Give answer-**

- a. if the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.
- b. if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.
- c. if the data in both statements I and II together are necessary to answer the question.
- d. if the data either in statement I alone or in statement II alone are sufficient to answer the question.
- e. if the data given in both statements I and II together are not sufficient to answer the question.

**41. What is the distance between point P and point Q?**

- I. Point R is 10 m west of point P and point S is 10 m north of point P.
- II. Point Q is 10 m south-east of point R. Point S is 20 m north-west of point Q.

**42. What is Monica's position with respect to Rahul?**

- I. In a row of 25 students, Monica is sitting 12th from right end of row and Rahul is sitting 20th from left end of the row.
- II. Monica is 4th from right end and Rahul is 8th from left end.

**43. Amit is facing which direction?**

- I. Shikha is facing east direction and if she turns to her right she will face Raj.
- II. Amit is facing opposite direction as that of Kiran who is facing Shikha.

**44. How many girls are taller than Shravan in his class ?**

- I. When students of Shravan's class are ranked in descending order of their heights, Shravan's rank is 17th from the top among all the students and 12th among boys.

- II. Shravan's rank from the bottom on the basis of height among boys is 18th and among all students, 29th.

**45. What is the distance between the final positions of Arun and Amit?**

- I. Arun starts from a point in north direction. After walking for 6 m he turns to right and walks 8m to reach point B. Next he takes a right turn again and walks 5 m before turning to left. Next he walks 7 m and turns right. Leaks for 5 m and stops finally.
- II. Amit starts walking in south direction form point B. Walks for 8 m and takes a left turn. Next walks for 10 M and turns to right, walks for and finally stops.

**Directions (46-50): In each of the following questions, a question is followed by two statements numbered I and II. Read both the statements and answer accordingly.**

- a. If the data in statement I alone is sufficient to answer the question.
- b. If the data in statement II alone is sufficient to answer the question.
- c. If the data either in statement I alone or statement II alone are sufficient to answer the question.
- d. If the data given in both I and II together are not sufficient to answer the question.
- e. If the data in both the statements I and II together are necessary to answer the question.

**46. Who is tallest among 6 people – A, B, C, D, E and F?**

- I. B is taller than D but smaller than A. A is not the tallest. E is taller than D.
- II. C is taller than F. A is taller than E.

**47. How is E related to F?**

- I. B is brother of L. L is daughter of F. E is daughter of A. A is sister-in-law of I. I is the father of D who is the daughter of L.
- II. H is wife of F. A is daughter-in-law of F. C is daughter of B. L is sister of B and daughter of F. H has only 2 children. E is sister of C.

**48. How is 'approval' written in code language?**

- I. In same code, 'approval amount pay' is written as 'iz pu ap' and 'enter approval amount pay' is written as 'iz na pu ap'
- II. In same code, 'treat pay into' is written as 'tn pu kx' and 'provide amount pay' is written as 'iz pu ot'

**49. Who is sitting to the immediate left of B in a circle in which 6 people are sitting at equal distances facing center?**

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I. B is sitting second to the left of A. 2 people are sitting between A and C. D is sitting opposite to E. F is not immediate neighbor of E.

II. A is sitting immediate right of F. B is sitting opposite F. C is sitting immediate left of D.

**50. In a class of 25 students, How many people have got ranks between B and C?**

I. A is second from top in the class. 2 people have ranks between A and C. B has got 5th rank from bottom.

Rank of A and B was noted wrong. When corrected, A was 5th from top and B 10th from bottom. 3 people have got ranks between C and D.

**Answer Key with Explanation**

**Solution (1-5)**

1. A

By, Statement I  $\rightarrow$  Seetha has 9 chocolates.

2. D

We cannot find the exact day, on which Arun was leave.

3. E

According to statement I and II  $B > A > C > D > F/E > F/E$

4. E

According to the statement I and II  $\rightarrow T > P > Q > R > S$  or  $T > P > Q > S > R$

5. B

According to statement II

5	
4	
3	E
2	
1	C

**Solution (6-10)**

6. C

I. Y \_ \_ \_ \_ K \_ (L1) \_ \_ \_ \_ R \_ \_ \_ \_ (L2)



From statement I we can't determine the exact place of L. So, statement I is not sufficient to answer.

II. \_\_\_\_\_ K \_ J \_ I \_\_\_\_\_ L

From statement II, there are 11 persons between L and K. So, statement II is sufficient to answer.

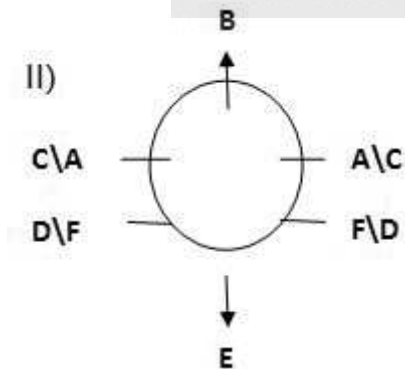
Hence, statement II is only sufficient to answer the question.

7. E

From statement I, A is second to the left of E. So, statement I is sufficient to answer.



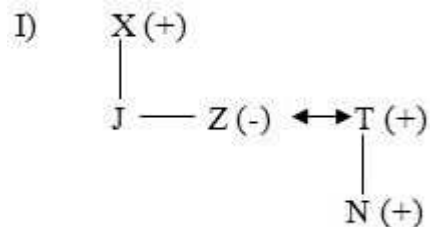
From statement II, we can't determine the A's position. So, statement II is not sufficient to answer.



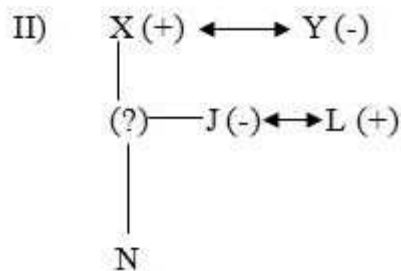
Hence, statement I is only sufficient to answer the question.

8. D

From statement I, X is the grandmother of N. So, statement I is sufficient to answer.



From statement II, X is the grandmother of N. So, statement II is sufficient to answer.



Hence, either I or II is sufficient to answer the question.

9. D

From statements I& II separately we get,  $U > S > R > T > V > W$

So, either I or II is sufficient to answer the question.

10. C

I.  $A > D > C$

II.  $B > E$

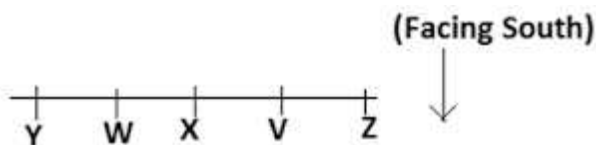
From statement II, E is lightest among all. Hence, statement II is only sufficient to answer the question.

**Solution (11-15)**

11. A

12. E

13. E



Sol. From both 1 and 2-

We can say that Y and Z are on the extreme end of the line.

14. D

Because gender of S is not defined so I and II together are not sufficient to answer.

15. B

By statement II-

$S > T > P > R > Q$

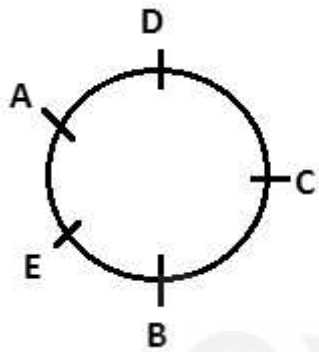
**Solution (16-20)**

16. B

From statement II- Siddharth leaves for Janupur on 6th January.

17. B

From statement II- E sits immediate left of B.

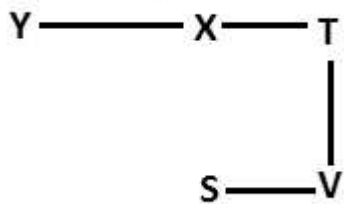


18. A

From 1-Called= bv

19. B

From statement II- S is south-east of point Y.



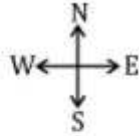
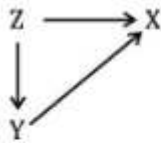
20. A

From statement I-  $A > E > B > C/D > C/D$

**Solution (21-25)**

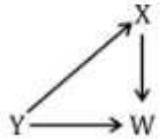
21. C

**Sol.** From I.



Hence, X is to the north-east of Y.

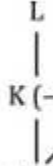
From II.



Hence, X is to the north-east of Y.

Thus, either statement I or statement II alone is sufficient.

**Sol.** From I and II, we get



M (+)

N (-) — O

L is either maternal grandfather or maternal grandmother of N. But we can't solve the question any further.

22. D

23. E

**Sol.** From I.—

—

Q

—

S

From II. PQT or TQP

From I and II, we have

R

P/T

Q

T/P

S

24. D

**Sol.** From I and II, we have

running/fast → he/po

The code of running is either he or po. So, we can't determine the exact code of running from both the statements.

25. A



**Solution (26-30)**

26. E

27. D

The data given in both I and II together are not sufficient to answer the question.

From both I and II:

Madhuri can stay at either 3 or 5. Akshay to be at 3 floors above Madhuri, which is not possible in either of the case.

28. D

The data given in both I and II together are not sufficient to answer the question.

Point D is 5 m north of X, so Y is also 5 m from D, but it is not necessary that Y is in straight distance to X through D, so can't be determined.

29. D

The data given in both I and II together are not sufficient to answer the question.

From both, the code for 'those' and 'days' can be find out. But 'great' and 'are' only present in I statement, so can't be determined.

30. A

The data in statement I alone is sufficient to answer the question.

From I: Nikita's birthday is on 29 Feb, Since Feb has no 30 date

**Solution (31-35)**

**31. E**

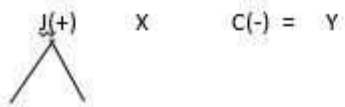
From I and II: Possible days according to Simran: 6, 7 and 8 days.

Possible days according to Ankur: 8, 9, and 10 days.

Thus, 8 is common in both statements. Hence, both are together sufficient to answer the question.

**32. B**

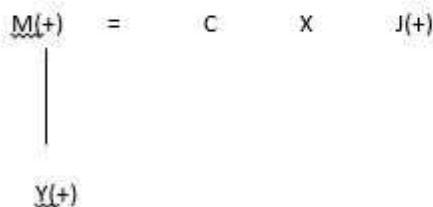
From I:



There is no information about Y's gender.

Hence, I is not sufficient to answer the question.

From II:

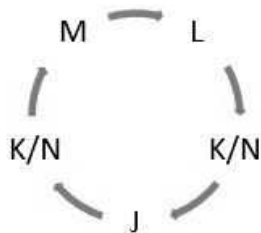


Y is nephew of J. Hence, only II is sufficient to answer the question.

**33. E**

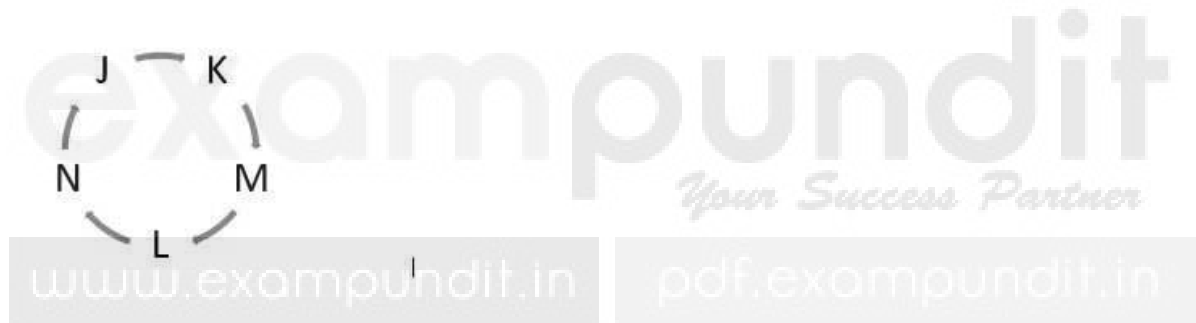
34. B

From I.



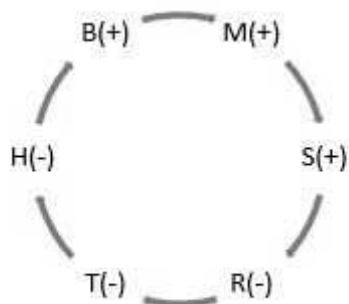
First is not sufficient to answer the question.

From II.



N is on the immediate left of L. Hence only II is sufficient to answer the question.

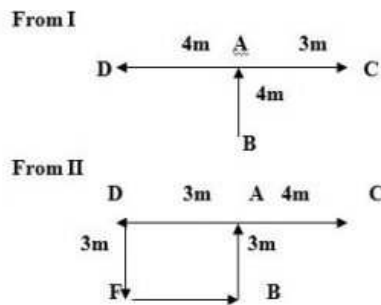
35. E



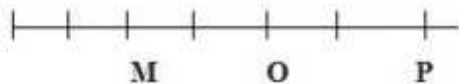
Combining I and II, the immediate neighbors of S are M and R

**Solution (36-40)**

36. D



37. A



38. C

ah koj zee pig => can you take that

et zee lin ter' means => you may come now

common Zee => you

39. C

K, P>L.....N.....

K.P>L>M>N>

40. E

From I:  $P \geq R = Q \geq S, T$

From II:  $S = R \leq Q < P$

**Solution (41-45)**

41. E

From I : No relation between points P and Q

From II : In this since we don't know the angles between sides of triangle forming with points PQS and PQR, PQ cannot be determined.

42. A

From I: The position of both of them in a row can be known, so Monica's position can be known.

From II: Since the total number of students is not known in this case, Monica's position with respect to Rahul cannot be known.



43. E

From I: Can't be found from I because no mention of Amit.

From II : Cannot be found because don't know the direction of either Kiran or Shikha.

From both also we cannot found because we don't know when Kiran is facing Shikha – when Shikha facing east or when Shikha after turning right faces south.

44. A

From I, we conclude that there are 16 students and 11 boys taller than Shravan.

This implies that there are 5 girls taller than Shravan.

In II, Shravan's rank from the bottom is mentioned and to ascertain the number of girls taller than him, we need to know his rank from the top for which the number of students in the class is required, which is not given.

45. E

Since we do not know the final distance of Amit we cannot know the actual stopping point of Amit so cannot be determined from any of the statement or both together.

**Solution (46-50)**

46. E

From both statements, C is tallest.

$C > A > B/D/E > F$  /  $C > F > A > B/D/E$

47. B

From I, E and A are not connected to anyone else.

From II: E is grand-daughter of F.

48. E

From both, approval – ap

49. C

50. A

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**Directions (1-5):** Each of the questions below consists of a question and three statements numbered I, II and III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read the question and all three statements and give answer accordingly.

**1. Some of the people are standing in a line and all are facing south direction. How many people standing in a line?**

I. O sits fourth to the extreme end of the line. One person sits between B and T. B is not an immediate neighbour of O. B does not sit any extreme end of the line. G sits second to the right of O.

II. Four persons sit between T and G. H sits third to the left of C. H is the only immediate neighbour of E. P sits fifth to the left of N.

III. G sits third to the right of L. B is an immediate neighbour of N but not an immediate neighbour of T. N sits one of the extreme end.

- a. Only I and II are sufficient to answer the question
- b. Only I and III are sufficient to answer the question
- c. All I, II and III are not sufficient to answer the question
- d. All I, II and III are sufficient to answer the question
- e. Only I and either II or III are sufficient to answer the question.

**2. There are seven members in a family, four males and four females. A is wife of C. C has two sons Q and B. T is the mother of R. How is R related to C?**

I. S is the nephew of Q. B is married to D.

II. T is the sister in law of D. D is the wife of B.

III. R is the niece of B. B is the only sibling of Q.

- a. Statement I and Statement II together are sufficient.
- b. Any two statements together are sufficient.
- c. Either statement I statement II together or statement II and statement III together is sufficient.

- d. All the statement I, statement II and statement III together are sufficient.
- e. Only Statement III is sufficient.

**3. There are five floors in a building named from no 1 to 5 in such a way that lowermost floor is numbered as 1 and topmost floor is numbered as 5. Five members live at different floors of the building namely, Rama, Lina, Tina, Charu and Anita, but not necessarily in the same order. Also these five work in different companies namely, A, B, C, D and E. Tina stays on Floor no 2 and works in company D and Charu stays on floor no 5. Also the one who stays on floor no 1 is working in company A. Then who lives on floor no 3 and in which company does she/he work?**

- I. Neither Lina nor Anita works in company A.
  - II. One who lives on floor 3 works in company C.
  - III. Anita does not work in company C.
- a. Statement I and Statement II together are sufficient .
  - b. Any two statements together are sufficient.
  - c. Either statement I statement II together or statement II and statement III together is sufficient.
  - d. All the statement I, statement II and statement III together are sufficient.
  - e. None are sufficient.

**4. There are six small children Bunty, Nutty, Sweety, Preeti, Neeti and Minty who like different chocolates - Dairy Milk, 5 Star, Perk, Snickers, Kitkat and Munch but not necessarily in the same order. Sweety likes Dairy Milk and Minty likes neither 5 Star nor Snickers. Who likes Kitkat?**

- I. Bunty likes Perk and Nutty does not like 5 Star.
  - II. Nutty likes Snickers and Preeti does not like Perk.
  - III. Neeti likes neither perk nor Snickers.
- a. Statement I and Statement II together are sufficient.
  - b. Any two statements together are sufficient.
  - c. Either statement I statement II together or statement II and statement III together is sufficient.
  - d. All the statement I, statement II and statement III together are sufficient.
  - e. None are sufficient.

**5. There are four different birds in a jungle - Parrot, Sparrow, Pigeon and Crow. They sit on different trees namely - Neem, Mango, Palm and Banyan but not necessarily in the same order. Parrot sits on Neem tree and Crow sits neither on Banyan tree nor on Mango tree. Who is sitting on Banyan tree?**

- I. Sparrow does not sit on Banyan tree.
- II. Pigeon neither sit on palm nor on Mango.
- a. First set of statements I alone is sufficient.
- b. Second set of statements II alone is sufficient.
- c. Either set of statements I or II alone is sufficient.
- d. Both sets of statements I and II together are not sufficient
- e. Both sets of statements I and II together are sufficient

**Directions (6-10): Each of the questions below consists of a question and three statements numbered I, II and III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read the question and all three statements and give answer accordingly.**

**6. There are six bottles and numbers from 1 to 6 are written on them. These bottles contain different liquids of different colors – Red, Green, Purple, Blue, Yellow and Orange; which have six different tastes - Salty, Sweet, Sour, Bitter, Tasteless, and Spicy but not necessarily in the same order. Bottle no 4 contains a green liquid which is sour in taste. Orange liquid is kept in bottle no 5 and the one which is purple in colour and is spicy in taste. Also bottle 1 contains a tasteless liquid. Yellow liquid is in which bottle.**

- I. Red liquid is kept in bottle no. 1. Bottle no 2 contains a liquid of blue colour which tastes salty. The sweet liquid is kept in a bottle which contains a number equals to Addition of the no of bottles that contain red and green liquids.
- II. Bottle no 6 contains a purple liquid. Bottle no 2 contains a blue liquid. Orange liquid tastes sweet while red does not have any taste. Also yellow is kept in bottle no 3.
- a. First set of statements I alone is sufficient.
- b. Second set of statements II alone is sufficient.
- c. Either set of statements I or II alone is sufficient.
- d. Both sets of statements I and II together are not sufficient
- e. Both sets of statements I and II together are sufficient

**7. Six employees A, B, C, E, F, H attend office on six different days starting from Monday to Saturday and each of them lives on different floors viz. 1st, 4th, 5th, 6th, 8th, 9th. The one who lives on 6th floor attend office on which of the following day?**

I. A lives on the 5th floor. Only two persons attend office between E and H, who does not live on an even number floor. H does not attend the office on second day and on Saturday. B attends office immediately before E.

II. The one who attends office on 1st day lives on the 1st floor. The one who lives 4th floor goes office on Thursday. E lives on an even number floor but not on 6th. E does not attend office on Thursday and Friday.

III. The one who attends the office immediately before A, lives on 8th floor. A does not attend office on Friday. Only two persons attend office between the one who lives on 8th floor and the one who lives on 9th floor.

a. If the data in statement I and II together are sufficient to answer the question, while the data in statement III are not required to answer the question.

b. If the data in statement I and III together are sufficient to answer the question, while the data in statement II are not required to answer the question.

c. If the data in statement II and III are sufficient to answer the question, while the data in statement I are not required to answer the question.

d. If the data in all three statements I, II and III together are necessary to answer the question.

e. If the data in all the statements, I, II and III even together are not sufficient to answer the question.

**8. A, B, C, D and E are five friends among the 12 students who participated in quiz and have different rank in the class (according to the marks they got). Each of the 12 participants obtained different marks (a whole number). One of the participants among the given five friends obtained 6 marks. Who obtained 6 marks and what is his rank?**

I. Only two person gets better rank than A. The one who got 2nd rank got 14 marks. No One got Thirteen marks. E got 11 Marks.

II. There are only five students whose marks lies between E and C. B got 10 marks. D gets 8th rank.

III. The one who got second last rank got  $\frac{2}{3}$  marks. C got 4 marks. Only two student marks lies between B and the one who got 6 marks

a. If the data in statement I and II together are sufficient to answer the question, while the data in statement III are not required to answer the question.

- b. If the data in statement I and III together are sufficient to answer the question, while the data in statement II are not required to answer the question.
- c. If the data in statement II and III are sufficient to answer the question, while the data in statement I are not required to answer the question.
- d. If the data in all three statements I, II and III together are necessary to answer the question.
- e. If the data in all the statements, I, II and III even together are not sufficient to answer the question.

**9. In a class of certain number of students, all of them are sitting in a row according to their rank. J's rank is 10th from the left end. What will be L's rank from the left end?**

I. K's rank is 5th from the right end and he is 4th from the right of H. Only three persons sit between H and D. D is 7th from the left end.

II. O is exactly in between J and L. O is third to the left of H.

- a. If statements I alone is sufficient to answer the question, but statement II alone is not sufficient to answer the question.
- b. If statement II alone is sufficient to answer the question, but statement I alone is not sufficient to answer the question.
- c. If statement either I or II is sufficient to answer the question.
- d. If both the statements I and II taken together are not sufficient to answer the questions.
- e. If both the statements I and II taken together are sufficient to answer the questions.

**10. Six persons P, Q, R, S, T, U are sitting around a circular table. Some of them are facing the center while some are facing away from the center. How many persons are facing inside?**

I. P sits third to the right of Q, who is facing outside. Both R and U are immediate neighbour of each other. S is not an immediate neighbour of Q.

II. U sits second to the left of Q, who is sitting third to the left of P. R sits second to the right of T.

- a. If statements I alone is sufficient to answer the question, but statement II alone is not sufficient to answer the question.
- b. If statement II alone is sufficient to answer the question, but statement I alone is not sufficient to answer the question.
- c. If statement either I or II is sufficient to answer the question.
- d. If both the statements I and II taken together are not sufficient to answer the questions.

e. If both the statements I and II taken together are sufficient to answer the questions

**Directions (11-15): Each of the questions below consists of a question and three statements numbered I, II and III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read the question and all three statements and give answer accordingly.**

**11. There are six persons namely D, E, G, K, L and M in a family are sitting two parallel rows. D, E and G are sitting in row-1 facing north while K, L and M are sitting in row-2 facing south. Then D's son is facing who among the following?**

I. L, who is the son of M, is the father of E. G is the daughter of M, who is married to D. D is sitting second to the right of G.

II. G is the sister-in-law of K, who is married to the father of E. Neither D nor G is facing L.

a. If statements I alone is sufficient to answer the question, but statement II alone is not sufficient to answer the question.

b. If statement II alone is sufficient to answer the question, but statement I alone is not sufficient to answer the question.

c. If statement either I or II is sufficient to answer the question.

d. If both the statements I and II taken together are not sufficient to answer the questions.

e. If both the statements I and II taken together are sufficient to answer the questions

**12. Six employees P, Q, R, S, T, U attend office on six different days starting from Monday to Saturday and each of them have their office on different floors viz. 1st, 4th, 5th, 6th, 8th, 9th. The one who has office on 1st floor attend office on which of the following day?**

I. Only two persons attend office in between R and S. The one who attend office on Wednesday has office on 8th floor. Q has office on an even numbered floor. P attends the office immediately before T. R attends office before S and has office on an odd numbered floor.

II. No one attend office after U. Only three persons attend office in between the one who has office on 1st floor and the one who has office on 5th floor. The one who attend office immediately before T has office 1st floor.

III. R has office neither on 1st nor on 5th floor. Q attends office immediately after S. The one who attend office on Thursday does not has office on 4th floor.

- a. If the data in statement I and II together are sufficient to answer the question, while the data in statement III are not required to answer the question.
- b. If the data in statement I and III together are sufficient to answer the question, while the data in statement II are not required to answer the question.
- c. If the data in statement II and III are sufficient to answer the question, while the data in statement I are not required to answer the question.
- d. If the data in all three statements I, II and III together are necessary to answer the question.
- e. If the data in all the statements, I, II and III even together are not sufficient to answer the question.

**13. If given Output: bold 71 keen 212 tough 353 unit 634 then which of the following will the input?**

I. If step II of the given input is---

Step II: bold 71 keen 212 tough 63 35 unit

II. If Step III of the given input is---

Step III: bold 71 keen 212 tough 353 63 unit

- a. If the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.
- b. If the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.
- c. If the data either in statement I alone or in statement II alone are sufficient to answer the question.
- d. If the data even in both statements I and II together are not sufficient to answer the question.
- e. If the data in both statements I and II together are necessary to answer the question.

**14. Ten persons P, Q, R, S, T, U, V, W, X, Y are living in a five storey building such as ground floor is numbered as 1, above it is floor 2 then top floor is numbered as 5. Each of the floor has 2 flats in it as flat-1 and flat-2. Flat-1 of floor-2 is immediately above flat-1 of floor-1 and immediately below flat-1 of floor-3 and so on. In the same way flat-2 of floor-2 is immediately above flat-2 of floor-1 and immediately below flat-2 of floor-3 and so on. Who among the following lives in flat-2 of floor-4?**

- I. Q lives on floor-2 and T lives to the west of Q. There is two floors gap between Q and V.
- II. X lives to the east of W. V does not live in the same flat number as W. There is a two floors gap between S and U.
- III. P lives to the west of S but does not live on ground floor. Y lives above R. Y and R live in same flat number.



- a. If the data in statement I and II together are sufficient to answer the question, while the data in statement III are not required to answer the question.
- b. If the data in statement I and III together are sufficient to answer the question, while the data in statement II are not required to answer the question.
- c. If the data in statement II and III are sufficient to answer the question, while the data in statement I are not required to answer the question.
- d. If the data in all three statements I, II and III together are necessary to answer the question.
- e. If the data in all the statements, I, II and III even together are not sufficient to answer the question.

**15. Who among the following is the father of D?**

I. There are eight members i.e. A, B, C, D, E, F, M and S they belongs to a family of four generation such that there are two married couples in the family. B is the sister-in-law of M, who is the brother of C. E is mother-in-law of B. B is not married to C. F is not the youngest member of the family.

II. S is the mother-in-law of E. A is not the son of E. A is the son of D. E has only one daughter. E has no brother-in-law. B has no sibling. C is female. F has no sibling.

- a. If statements I alone is sufficient to answer the question, but statement II alone is not sufficient to answer the question.
- b. If statement II alone is sufficient to answer the question, but statement I alone is not sufficient to answer the question.
- c. If statement either I or II is sufficient to answer the question.
- d. If both the statements I and II taken together are not sufficient to answer the questions.
- e. If both the statements I and II taken together are sufficient to answer the questions.

**Directions (16-20): Each of the questions below consists of a question and three statements numbered I, II and III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read the question and all three statements and give answer accordingly.**

**16. Seven persons i.e. A, B, C, D, E, F and G who all are sitting in a row such that some faces south and some faces north direction. Who among the following sits second to the left of G?**

- I. E does not sit at the end of the row. E sits third to the right of A. A faces south direction. C and G faces same direction. F does not sit at the end of the row. F sits second to the right of E.

II. No one sits on the left of B. A and B faces opposite direction. G sits second to the right of B. Immediate neighbour of G faces opposite direction. D sits third to the right of C.

- a. If statements I alone is sufficient to answer the question, but statement II alone is not sufficient to answer the question.
- b. If statement II alone is sufficient to answer the question, but statement I alone is not sufficient to answer the question.
- c. If statement either I or II is sufficient to answer the question.
- d. If both the statements I and II taken together are not sufficient to answer the questions.
- e. If both the statements I and II taken together are sufficient to answer the questions.

**17. Six teachers i.e. A, B, C, D, E and F who all takes lecture from Monday to Saturday on different topic i.e. Math's, Physics, Chemistry, Biology, Economics and English but not necessarily in the same order. Who among the following teaches Economics on which of the following day?**

I. Only three teachers take classes between B and the one who takes class of Biology. Economy lecture is taken immediately before Biology Class. B does not take lecture on Saturday. Only one person takes lecture between E and C, who takes lecture on the last day but not of Biology.

II. E takes lecture immediately after the one who takes lecture of English. Only one person takes lecture between E and D. Only two person takes lecture between C and A, who takes lecture before C but after E. Only one person takes lecture between C and the one who takes lecture of Economics subject. D takes lecture of Economics.

- a. If statements I alone is sufficient to answer the question, but statement II alone is not sufficient to answer the question.
- b. If statement II alone is sufficient to answer the question, but statement I alone is not sufficient to answer the question.
- c. If statement either I or II is sufficient to answer the question.
- d. If both the statements I and II taken together are not sufficient to answer the questions.
- e. If both the statements I and II taken together are sufficient to answer the questions.

**18. Seven persons i.e. A, B, C, D, E, F and G are sitting around a circular table. Are all the persons facing towards the centre of the table?**

I. A sits third to the right of C, who sits second to the left of D. Only two persons sit between G and A. B is not the immediate neighbour of C. C faces inside.

II. D sits third to the left of B. and second to the right of E. C sits third to the right of F, who is not the immediate neighbour of E.

III. F sits third to the right of B. A and G faces same direction. F sits second to the left of A. E sits third to the right of F, and on the immediate left of B. E and B faces same direction. B is not an immediate neighbour of A.

a. If the data in statement I and II together are sufficient to answer the question, while the data in statement III are not required to answer the question.

b. If the data in statement I and III together are sufficient to answer the question, while the data in statement II are not required to answer the question.

c. If the data in statement II and III are sufficient to answer the question, while the data in statement I are not required to answer the question.

d. If the data in all three statements I, II and III together are necessary to answer the question.

e. If the data in all the statements, I, II and III even together are not sufficient to answer the question.

**19. There are 9 members i.e. A, B, D, G, H, R, Z, I and K in a family having three generation. How is R related to Z?**

I. Z has three children. C is the unmarried brother of G. B is the sister-in-law of D. There are three married couple in the family.

II. D is the daughter in law of A, who is the father in law of I. K is the cousin of R, who is a female.

III. Z has only one daughter. I is the brother-in-law of C. B is the mother of K.

a. If the data in statement I and II together are sufficient to answer the question, while the data in statement III are not required to answer the question.

b. If the data in statement I and III together are sufficient to answer the question, while the data in statement II are not required to answer the question.

c. If the data in statement II and III are sufficient to answer the question, while the data in statement I are not required to answer the question.

d. If the data in all three statements I, II and III together are necessary to answer the question.

e. If the data in all the statements, I, II and III even together are not sufficient to answer the question.

**20. Some persons are sitting in a row such that all are facing in the north direction. Who among the following sits fourth to the left of D?**

I. M sits third to the right of D. Only five persons sit between M and A. More than two persons sit between M and N.

II. D sits second to the left of M, who sits sixth to the left of N. A sits third to the right of N.

III. More than six persons sit between R and D. B sits exactly between N and A. B sits fifth to the right of R. Only one person sits between N and A.

a. If the data in statement I and II together are sufficient to answer the question, while the data in statement III are not required to answer the question.

b. If the data in statement I and III together are sufficient to answer the question, while the data in statement II are not required to answer the question.

c. If the data in statement II and III are sufficient to answer the question, while the data in statement I are not required to answer the question.

d. If the data in all three statements I, II and III together are necessary to answer the question.

e. If the data in all the statements, I, II and III even together are not sufficient to answer the question.

**Directions (21-25): Each of the questions below consists of a question and three statements numbered I, II and III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read the question and all three statements and give answer accordingly.**

**21. Conclusion:**

I. Some hands are not Socks.

II. No legs are socks.

**Statement:**

I. All legs are Hands. Some Shoes are legs. No Legs are fingers.

II. Some watches are arm. All arms are fingers. All legs are Hands.

III. No Socks are Shoes. All legs are Shoes. Some Hands are finger.

a. If the data in statement I and II together are sufficient to answer the question, while the data in statement III are not required to answer the question.

b. If the data in statement I and III together are sufficient to answer the question, while the data in statement II are not required to answer the question.

c. If the data in statement II and III are sufficient to answer the question, while the data in statement I are not required to answer the question.

d. If the data in all three statements I, II and III together are necessary to answer the question.

e. If the data in all the statements, I, II and III even together are not sufficient to answer the question.

**22. Eight persons i.e. A, B, C, D, E, F, G and H are sitting around a circular table such that some of them face inside and some face outside. How many persons face outside?**

I. A sits second to the right of E and second to the right of D. G and D faces opposite direction. C and G are the immediate neighbour of E. F does not face inside.

II. Not more than two persons sitting adjacent to each other faces same direction. H sits second to the left of C, who sits third to the left of B. H and A face same direction. C and G face opposite direction.

III. A sits third to the left G, who sits second to the right of C. E is not the immediate neighbor of G.

a. If the data in statement I and II together are sufficient to answer the question, while the data in statement III are not required to answer the question.

b. If the data in statement I and III together are sufficient to answer the question, while the data in statement II are not required to answer the question.

c. If the data in statement II and III are sufficient to answer the question, while the data in statement I are not required to answer the question.

d. If the data in all three statements I, II and III together are necessary to answer the question.

e. If the data in all the statements, I, II and III even together are not sufficient to answer the question.

**23. Eight persons H, I, J, K, L, M, N and O are living in eight floors building but not necessarily in the same order. The lowermost floor is numbered as one and the above floor is numbered as two and so on till the topmost floor is numbered as eight. Who lives in the topmost floor?**

I. J lives in even numbered floor but not lives above fifth floor. Two persons live between J and O.

II. Four persons live between H and O. N lives an adjacent floor of K.

III. As many persons live between J and K is same as J and M. K lives above M. I lives in second floor. N lives on adjacent floor of K and H.

a) Only I and III are sufficient to answer the question

b) Only II and III are sufficient to answer the question

c) All I, II and III together sufficient to answer the question

d) Either both I and II or only III is sufficient to answer the question

e) All I, II and III together not sufficient to answer the question

**24). Who is the youngest among six family members Depa, Siya, Daya, Kana, Aman and Shiv? (Each member is of different age.)**

I. Depa is the daughter-in-law of Kana, Aman is grandson of Shiv, who is the father of Siya.

II. Depa is not youngest while Shiv is the eldest.

III. Siya is the father of Daya, who is grandson of Shiv. Kana is the wife of Aman's son and Daya's father.

a. If the data in statement I alone or in the statement II alone or in the statement III alone is sufficient to answer the question.

b. If the data in statement I and II are sufficient to answer the question, while the data in statement III are not sufficient to answer the question.

c. If the data in statement II and III are sufficient to answer the question, while the data in statement I is not sufficient to answer the question.

d. If the data in statement I and III are sufficient to answer the question, while the data in statement II is not sufficient to answer the question.

e. If the data in all the statement I, II and III are necessary to answer the question.

**25). Six people – Hina, Raj, Rupa, Rani, Gopi and Damu are living in six floor building each lives on one of the floors of the building. There are six floors in the building such that ground floor is numbered I, the floor above it is numbered II and so on. Who is living on Ground floor?**

I. There is only one floor between the floors on which floor Rupa and Raj are living. Hina is living on an even numbered floor.

II. Gopi is not living on an even numbered floor. Raj is living on an even numbered floor. Raj is not living on the top floor

III. Rani is living on an odd numbered floor. There are two floors between the floor on which Rani and Hina are living. Gopi is living immediately above Rupa.

a. If the data in statement I alone or in the statement II alone or in the statement III alone is sufficient to answer the question.

b. If the data in statement I and II are sufficient to answer the question, while the data in statement III are not sufficient to answer the question.

c. If the data in statement II and III are sufficient to answer the question, while the data in statement I is not sufficient to answer the question.

- d. If the data in statement I and III are sufficient to answer the question, while the data in statement II is not sufficient to answer the question.
- e. If the data in all the statement I, II and III are necessary to answer the question

**Directions (26-30): Each of the questions below consists of a question and three statements numbered I, II and III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read the question and all three statements and give answer accordingly.**

**26. In which direction is point R with respect to P?**

- I. C is in the north of P and R is in the west of C.
- II. Q is in west of P and R is in the North of Q.
- III. R is in the north-west direction of P.
- a. Statement I and statement II are sufficient to answer the question.
- b. Statement I alone is sufficient to answer the question.
- c. Either statement I alone or statement II alone or statement III alone is sufficient to answer the question.
- d. All the statement I, statement II and statement III are sufficient to answer the question.
- e. None of the statement I, statement II and statement III is sufficient to answer the question.

**27. Four friends are sitting around a circular table named M, N, O and P. Are they facing to the centre of table? If-**

- I. N is sitting second to the right of P. P is facing centre. O is sitting immediate right of N and P.
- II. M is sitting immediate left of N. O is not sitting immediate left of M. O is sitting immediate right of P.
- III. P is sitting immediate of M and O. N is sitting immediate left of M. O is sitting immediate left of P.
- a. If the data in statement I and II are sufficient to answer the question, while the data in statement III are not sufficient to answer the question.
- b. If the data in statement II and III are sufficient to answer the question, while the data in statement I is not sufficient to answer the question.
- c. If the data in statement I alone or in the statement II alone or in the statement III alone is sufficient to answer the question.
- d. If the data in all the statement I, II and III are necessary to answer the question.

e. If the data in statement I and III are sufficient to answer the question, while the data in statement II is not sufficient to answer the question.

**28. Six people A, B, C, D, E and F are living in six floor building each live in one of apartment of building. In building there are from I to VI floor. Ground floor is given number I, then II and so on. Who is living on Ground floor?**

I. In which floor C and B are living there is only one floor between them. A is living in even number floor.

II. E is not living in even number floor. B is living in even number floor. B is not living in top floor.

III. D is living in odd number floor. In which floor D and A are living, there are two between them. E is living immediately above C.

a. If the data in statement I and II are sufficient to answer the question, while the data in statement III are not sufficient to answer the question.

b. If the data in statement I and III are sufficient to answer the question, while the data in statement II is not sufficient to answer the question.

c. If the data in statement II and III are sufficient to answer the question, while the data in statement I is not sufficient to answer the question.

d. If the data in all the statement I, II and III are necessary to answer the question

e. If the data in statement I alone or in the statement II alone or in the statement III alone is sufficient to answer the question.

**29. Who is youngest among six family members G, H, I, J, K and L? (Each member is of different ages.)**

I. G is the daughter-in-law of J, K is grandson of L, who is the father of H.

II. G is not youngest while L is the eldest.

III. H is the father of I, who is grandson of L. J is the wife of K's son and I's father.

a. If the data in statement I and II are sufficient to answer the question, while the data in statement III are not sufficient to answer the question.

b. If the data in statement I alone or in the statement II alone or in the statement III alone is sufficient to answer the question.

c. If the data in statement I and III are sufficient to answer the question, while the data in statement II is not sufficient to answer the question.



d. If the data in statement II and III are sufficient to answer the question, while the data in statement I is not sufficient to answer the question.

e. If the data in all the statement I, II and III are necessary to answer the question

**30. What is the position of A from right end of row?**

I: B is sitting at 6th position from the left end of row. There is one person sitting between B and A.

II: C is sitting at 8th position from the left end and also at 13th position from the right end of row in the same row.

III: There are 6 people sitting between A and D. Also B is sitting 5th to right of D

a. Both I and II

b. Both II and III

c. Both I and III

d. I and either II or III

e. Even I, II and III together are also not sufficient

**Directions (31-35): Each of the questions below consists of a question and three statements numbered I, II and III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read the question and all three statements and give answer accordingly.**

**31. Six people are sitting in a circle facing centre. A is sitting at which position respect to B in a circular arrangement?**

I: D is third to left of E who is who is second to right of F.

II: D is sitting second to left of C who is sitting second to left of B.

III: F and E are immediate neighbors of C

a. Both II and III

b. II and either I or III

c. Both I and II

d. All I, II and III

e. Even I, II and III together are also not sufficient

**32. How is Anil related to Bhuvan?**

I: Rani who is the wife of Bhuvan is also the daughter-in-law of Rina. Rina is the mother of Anil.

II: Rani has no sister. Sahil is the grandfather of Tina who is the daughter of Bhuvan. Anil is the brother-in-law of Tina's mother Rani. Bhuvan's parents have only 2 sons.

III: Anil is married to Kiran and have daughter named Swati. Kiran is the sister of Shikha.

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

**33. Of the six persons, A, B, C, D, E and F who is sitting at 2nd position from right end of row? (All are facing north direction)**

I: E does not sit at the corner. B is the only neighbor of A. There are 2 people sitting between F and C.

II: D is sitting to the immediate left of C.

III: There are equal number of persons sitting between A and F as that between F and D

- a. Both I and II
- b. Both II and III
- c. All I, II and III
- d. II and either I or III
- e. Even I, II and III together are not sufficient.

**34. What does the code 'az' stand for in the given code language?**

I: In the language, 'tree water root' is coded as 'as nm or' and 'flower stem bud' is coded as 'st od wo'

II: In the language, 'stem plant leave' is coded as 'er az od' and 'plant stem water' is coded as 'od or az'

III: In the language, 'flower air Sun' is coded as 'pa wo kl' and 'food plant leave' is coded as 'az bi er'

- a. Both II and III
- b. I and either II or III
- c. II and either I or III
- d. Both I and III
- e. All I, II and III

**35. How many people are sitting in the row? (All are facing North)**

I. 2 people are sitting between D and E. S is immediate neighbor of D. F is sitting at extreme end of line. F is sitting third to the left of A.

II. A is sitting at third position from left end of row. B is sitting second to the right of A. B and C are immediate neighbors. 4 people are sitting between C and D. D is sitting at an extreme end and is left of A.

III. B is sitting immediate left of C. There is one person sitting between A and B. 4 people are sitting to the right of A.

- a. All I, II and III
- b. Both II and III
- c. Either I and II together or III alone
- d. III and I or II
- e. Even I, II and III together are also not sufficient

**Directions (36-40): Each of the questions below consists of a question and three statements numbered I, II and III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read the question and all three statements and give answer accordingly.**

**36. In which direction is point E with respect to point K?**

I. A is 4 m to the west of B, B is 4 m to the north of C. D is 5 m to the east of C.

II. D is 3 m to the south of E. G is 5 m to the east of F. F is 2 m to the south of D. H is 4 m to the south of G.

III. J is 7 m to the west of K. L is 4 m to the north of K. L is 8 m to the south of P.

- a. Both II and III
- b. II and either I or III
- c. Both I and II
- d. All I, II and III
- e. Even I, II and III together are also not sufficient

**37. What is the direction of point O with respect to point with respect to point I?**

I. Point A is 5 m to the north of point P. point D is 4 m to the south of point C. Point P is 6 m to the east of point C.

II. Point B is 3 m to the east of point P. Point I is 6 m to the east of point F. Point B is 4 m to the north of point F.

III. Point N is 2 m to the north of point M. Point A is 4 m to the west of point M. Point N is 6 m to the east of point O.

- a. All I, II and III
- b. Both II and III

- c. Only II
- d. II and both I and III
- e. Both I and II

**38. How is B related to G?**

- I. A is father of B. S is the brother of B. E and G are siblings who are grandchildren of A.
- II. P is married to A. P has only 2 sons and one is S. G is niece of S.
- III. H is sister-in-law of B. D is sister of H. E is the daughter of D.

- a. Both I and II
- b. Both I and III
- c. All I, II and III
- d. I and either II or III
- e. Even I, II and III together are not sufficient.

**39. Who among A, B, C, D, and E (all facing north) is sitting in the middle of a row?**

- I. D is sitting third to right of A who is to the immediate left of B.
- II. There are as many people between C and B as between A and E.
- III. A and B are sitting together. E is second to right of A. C and D both are sitting together.

- a. Both II and III
- b. I and either II or III
- c. II and either I or III
- d. Both I and II
- e. All I, II and III

**40. Six people I, J, K, L, M and N are living in six floor building. In building there are from I to VI floor and ground floor is given number I, then II and so on. Who is living on Ground floor?**

- I. There is only one floor between K and J. I is living in even number floor.
- II. M is not living in even number floor. J is living in even number floor. J is not living in top floor.
- III. L is living in odd number floor. There are two floors between L and I. M is living immediate above of K.
- a. If the data in statement I and II are sufficient to answer the question, while the data in statement III are not sufficient to answer the question.

- b.If the data in statement I and III are sufficient to answer the question, while the data in statement II is not sufficient to answer the question.
- c.If the data in statement II and III are sufficient to answer the question, while the data in statement I is not sufficient to answer the question.
- d. If the data in all the statement I, II and III are necessary to answer the question.
- e. If the data in statement I alone or in the statement II alone or in the statement III alone is sufficient to answer the question

**Directions (41-45): Each of the questions below consists of a question and three statements numbered I, II and III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read the question and all three statements and give answer accordingly.**

**41. Who among Y, Z, A and B is the heaviest?**

- I. Z is heavier than B.
- II. Y is not as heavy as either A or Z.
- III. B is neither the heaviest nor the lightest.

- a. If the data in statement I and III are sufficient to answer the question, while the data in statement II is not sufficient to answer the question.
- b. If the data in statement I and II are sufficient to answer the question, while the data in statement III are not sufficient to answer the question.
- c. If the data in all the statement I, II and III are necessary to answer the question
- d. If the data in statement II and III are sufficient to answer the question, while the data in statement I is not sufficient to answer the question.
- e. If the data in all the statements together cannot answer the question

**42. In which direction is point M with respect to point N?**

- I. O is 4m to the west of P, P is 4m to the north of Q. R is 5m to the east of Q.
- II. R is 3m to the south of M. S is 5m to the east of T. T is 2m to the south of R. W is 4m to the south of S.
- III. U is 7m to the west of N. S is 4m to the west of U. V is 8m to the south of U.

- a. If the data in statement II and III are sufficient to answer the question, while the data in statement I is not sufficient to answer the question.
- b. If the data in all the statements together cannot answer the question

- c. If the data in statement I and III are sufficient to answer the question, while the data in statement II is not sufficient to answer the question.
- d. If the data in statement I and II are sufficient to answer the question, while the data in statement III are not sufficient to answer the question.
- e. If the data in all the statement I, II and III are necessary to answer the question

**43. How many sisters does L have?**

I. J is husband of K and father-in-law of I who has three Children.

II. L's father M is husband of I. N and O are sisters of L.

III. Out of the three children whom M has, only one is a boy.

- a. Only statement I is required
- b. Only statement II is required
- c. Both I and III required
- d. Both II and III required
- e. Question cannot be answered even with all the statements together.

**44. How is 'one' coded in a code language?**

I. 'one of its kind' is coded as 'gv ur su mp' and 'in kind and cash' is coded as 'kt cr dl su'.

II. 'its point for origin' is coded as 'ib ev mp fg' and 'make point clear' is coded as 'ga ha fg ma'.

III. 'make money and cash' is coded as 'cr fg dl ta' and 'money of various kind' is coded as 'ca su gv ta'.

- a. Both I and III together
- b. Only statement III required
- c. Both I and II together
- d. All statements I, II and III together
- e. Question cannot be answered even with all the statements together

**45. A dealer sold six watches A, B, C, D, E and F during a period of Monday to Saturday, one watch on each day. The watch A was sold immediately after**

I. The watch C was sold at least before three watches. The watch F was sold on Tuesday

II. At least four watches were sold after the watch E.

III. Both the watches B and E were sold at least before one watch. The watch D was sold immediately after the watch

C.

- (a) If the data in statement I and II together are sufficient to answer the question, while the data in statement III are not required to answer the question.
- (b) If the data in statement I and III together are sufficient to answer the question, while the data in statement II are not required to answer the question
- (C) If the data in statement II and III are sufficient to answer the question, while the data in statement I are not required to answer the question.
- (d) If the data in all three statements I, II and III together are necessary to answer the question.
- (e) If the data in all the statements, I, II and III even together are not sufficient to answer the question

**Directions (46-50): Each of the questions below consists of a question and three statements numbered I, II and III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read the question and all three statements and give answer accordingly.**

**46. There are six letters O, R, U, D, N and A which are arranged in a particular manner. Is a meaningful word will be formed after arrangement**

- I. A is placed fourth to the left of N. O is not placed immediately next to either A or N.
  - II. D is not at the left end of the row.
  - III. Both letters R and U are placed immediately left and right to O respectively. D is not at the left end of the row.
- a. If the data in statement I and II together are sufficient to answer the question, while the data in statement III are not required to answer the question.
  - b. If the data in statement I and III together are sufficient to answer the question, while the data in statement II are not required to answer the question
  - c. If the data in statement II and III are sufficient to answer the question, while the data in statement I are not required to answer the question.
  - d. If the data in all three statements I, II and III together are necessary to answer the question.
  - e. If the data in all the statements, I, II and III even together are not sufficient to answer the question

**47. P, Q, R, S, T and V are six students studying in a class. Each of them has a different height and weight. The tallest is not the heaviest. Who among them is the tallest?**

- I. T is taller than only P but lighter than R. Q is taller than S and P and heavier than only T and V
- II. S is taller than V and Q is not the tallest.

III. T is heavier than V. V is not the smallest.

- a. If the data in statement I and II together are sufficient to answer the question, while the data in statement III are not required to answer the question.
- b. If the data in statement I and III together are sufficient to answer the question, while the data in statement II are not required to answer the question
- c. If the data in statement II and III are sufficient to answer the question, while the data in statement I are not required to answer the question.
- d. If the data in all three statements I, II and III together are necessary to answer the question.
- e. If the data in all the statements, I, II and III even together are not sufficient to answer the question

**48. In a certain code language 'airlines are much costlier than railways' is coded as 'ko dhu pa lug ha ho' than what can be the code for 'much' in the given code language?**

I. 'people likes economy airlines' is coded as 'du gpa pa ku',

II. 'travelling by railways' is coded as 'ho su do' and 'more than one' is coded as 'dha hi ko'.

III. 'one of them likes travelling' is coded as 'lha dha ki su gpa'.

- a. If the data in statement I and II together are sufficient to answer the question, while the data in statement III are not required to answer the question.
- b. If the data in statement I and III together are sufficient to answer the question, while the data in statement II are not required to answer the question
- c. If the data in statement II and III are sufficient to answer the question, while the data in statement I are not required to answer the question.
- d. If the data in all three statements I, II and III together are necessary to answer the question.
- e. If the data in all the statements, I, II and III even together are not sufficient to answer the question

**49. In a family of 6 members P, Q, R, S, T and U, there are two married couples. Is R is daughter of P?**

I. P and U are married to each other. P and U have 2 children T and Q.

II. Q a male is married to R and has one daughter S.

III. U and P have two daughters and one son.

- a. If the data in statement I and II together are sufficient to answer the question, while the data in statement III are not required to answer the question.



- b. If the data in statement I and III together are sufficient to answer the question, while the data in statement II are not required to answer the question
- c. If the data in statement II and III are sufficient to answer the question, while the data in statement I are not required to answer the question.
- d. If the data in all three statements I, II and III together are necessary to answer the question.
- e. If the data in all the statements, I, II and III even together are not sufficient to answer the question

**50. Seven P, Q, R, S, T, U and V are living in seven different floors of an apartment. The lowermost floor is numbered 1 and so on and the topmost floor is numbered 7 but not necessarily in the same order. Who lives at the topmost floor?**

I. A lives at one of the odd numbered floors but not on top most floor. Only two persons are living between A and G. E lives immediately below G. Three persons are living between C and B. C lives one of the floors above B. D lives at even numbered floor but not on floor no.6.

II. G lives at prime numbered floor but not on the lowermost and uppermost floor. Three persons live between G and D. Two floors are there between F and E and both are living below D. As many persons above B as below C. F lives one of the floors above E. B does not live at the topmost floor. C lives on odd numbered floor. D and B lives on adjacent floors.

- a. If statements I alone is sufficient to answer the question, but statement II alone is not sufficient to answer the question.
- b. If statement II alone is sufficient to answer the question, but statement I alone is not sufficient to answer the question.
- c. If statement either I or II is sufficient to answer the question.
- d. If both the statements I and II taken together are not sufficient to answer the questions.
- e. If both the statements I and II taken together are sufficient to answer the questions.

Answer Key with Explanation

**Solution (1-5)**

1. D

From I, II and III.

We will have two cases:

N can sit fourth from the left end as well as right end also.

Case 1.

N G \_\_\_\_ O L P T

This case will get discarded as there is no place left for B.

Case 2.

(i) G \_\_\_\_ O L \_\_\_\_ T

This case will get discarded as there is no place left for B.

(ii)

T \_\_\_\_ B \_\_\_\_ G \_\_\_\_ O L \_\_\_\_

This case will get discarded as there is no place left for N.

(iii)

N B \_\_\_\_ T \_\_\_\_ P \_\_\_\_ G C O L H E

Hence 14 people standing in line.

2. E

A is wife of C. C has two sons Q and B.



Statement I. S is the nephew of Q. B is married to D.

S is son of B. but we do not get information about R. so this statement is not sufficient.

Statement II. T is the sister in law of D. D is the wife of B.

T is the wife of Q. but no info of R, hence this is also not sufficient.

Statement III. R is the niece of B. B is the only sibling of Q.

This statement alone gives us the information that R is the daughter of Q and hence granddaughter of C. therefore statement alone is sufficient to answer the question.

3. D

Tina stays on Floor no 2 and works in company D and Charu stays on floor no 5. Also the one who stays on floor no 1 is working in company A.

5	Charu	
4		
3		
2	Tina	D
1		A

Statement 1: Neither Lina nor Anita works in company A

Only Rama is left who will work in company A.

Statement 2: One who lives on floor 3 works in company C.

This statement alone is not sufficient to answer the question.

Statement 3: Anita does not work in company C.

If Anita does not work in C, so either Lina or Rama will work in company C.

If we take statement 1 and 2 together, we will get the following table:

5	Charu	
4		
3		C
2	Tina	D
1	Rama	A

Taking statement 1 and 3 together, we get the following table:

5	Charu	
4		
3	Lina	
2	Tina	D

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1	Rama	A
---	------	---

Taking Statement 2 and 3 together, we get the following table:

5	Charu	
4		
3	Lina/Rama	C
2	Tina	D
1		A

Taking all three statements together, we get:

5	Charu	
4		
3	Lina	C
2	Tina	D
1	Rama	A

Hence to answer the question we need all three statements.

4. E

Sweety likes Dairy milk and Minty likes neither 5 star nor snickers.

Bunty	Nutty	Sweety	Preeti	Neeti	Minty
		Dairy Milk			
					5 Star-X, Snickers-X

**Statement 1: Bunty likes Perk and Nutty does not like 5 Star.**

Bunty	Nutty	Sweety	Preeti	Neeti	Minty
Perk		Dairy Milk			
	5 Star-X				5 Star-X, Snickers-X

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**Statement 2: Nutty likes snickers and Preeti does not like Perk.**

Bunty	Nutty	Sweety	Preeti	Neeti	Minty
	Snickers	Dairy milk			
			Perk-X		5 Star-X, Snickers-X

**Statement 3: Neeti likes neither perk nor snickers.**

Bunty	Nutty	Sweety	Preeti	Neeti	Minty
		Dairy milk			
				Snickers-X Perk-X	5star-X, Snickers-X

Taking together all three statements, we do not get the answer. Hence all three statements together are not sufficient to answer the question.

Bunty	Nutty	Sweety	Preeti	Neeti	Minty
perk	Snickers	Dairy milk			
	5 star-x		Perk-X	Snickers-X Perk-X	5 Star-X, Snickers-X

Hence, the correct answer is option E.

5. C

Parrot sits on Neem tree and Crow sits neither on Banyan tree nor on Mango tree.

If crow does not sit on Banyan and Mango tree it must sit on palm tree.

Sparrow		
Parrot	Neem	

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Crow	Palm.	Banyan-X, Mango-X
Pigeon		

Statement 1: Sparrow does not sit on Banyan tree.

Sparrow	Mango	Bnayan-X
Parrot	Neem	
Crow	Palm.	Banyan-X, Mango-X
Pigeon	Banyan	

Statement 2: Pigeon neither sit on palm nor on Mango.

Sparrow	Mango	
Parrot	Neem	
Crow	Palm.	Banyan-X, Mango-X
Pigeon	Banyan	Palm-X, Mango-X

Hence, either of the two is sufficient to answer the question.

**Solution (6-10)**

6. E

Bottle no 4 contains a green liquid which is sour in taste. Orange liquid is kept in bottle no 5 and the one which is purple in colour is spicy in taste. Also bottle 1 contains a tasteless liquid.

Statement 1: Red liquid is kept in bottle no. 1. Bottle no 2 contains a liquid of blue colour which tastes salty. The sweet liquid is kept in a bottle which contains a number equals to Addition of the no of bottles that contain red and green liquids.

Sweet liquid bottle no = bottle no of red + bottle no of green;

i.e, Sweet liquid is in =  $1 + 4 = 5$  bottle.

1	Red	Tasteless
2	Blue	Salty
3		
4	Green	Sour
5	Orange	Sweet
6		

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This statement is not sufficient to find to answer the question.

Statement 2: Bottle no 6 contains a purple liquid. Bottle no 2 contains a blue liquid. Orange liquid tastes sweet while red does not have any taste. Also yellow is kept in bottle number 3

We know purple liquid is Spicy in taste.

1	Red	Tasteless
2	Blue	
3	Yellow	
4	Green	Sour
5	Orange	Sweet
6	Purple	Spicy

This statement is also alone not sufficient to answer the question.

But taking both statements together, we can answer the question. Hence both statements are necessary as well as sufficient to answer the question.

7. D

From statement I, II and III,

Day's	Person	Floor
Monday	B	1st
Tuesday	E	8th
Wednesday	A	5th
Thursday	F/C	4th
Friday	H	9th
Saturday	F/C	6th

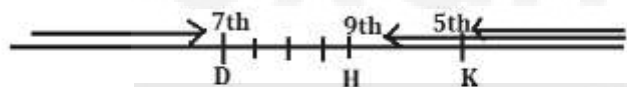
8. D

From statement I, II and III

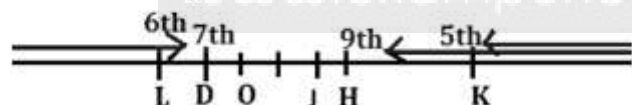
Rank	Person	Marks
1		
2		14
3	A	12
4	E	11
5	B	10
6		
7		
8	D	6
9		
10	C	4
11		2/3
12		

9. E

From I,

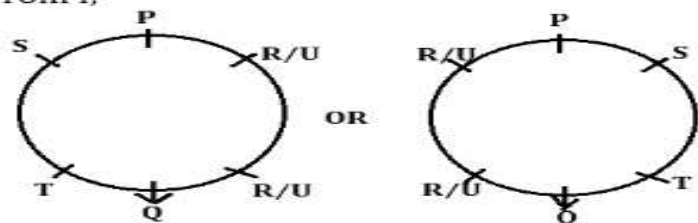


From I and II,

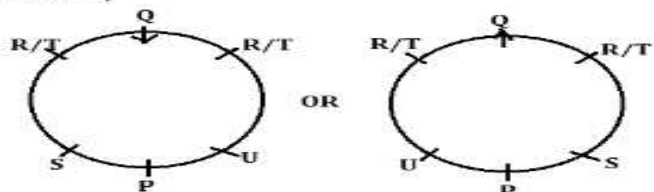


10. D

From I,



From II,



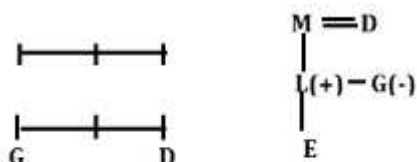
Even by combining both the statements I and II together we get that both the are not sufficient to answer the questions.



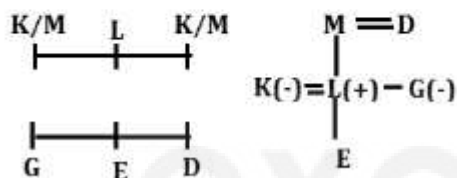
**Solution (11-15)**

11. E

From I,



From both I and II,



So, clearly the son of D i.e. L is facing E.

12. A

From I

	Case-1		Case-2	
Days	Person	Floors	Person	Floors
Monday	R			
Tuesday	P/		R	
Wednesday	T/	8th	P	8th
Thursday	S		T	
Friday	P/		S	
Saturday	T/			

From II,

	Case-1		Case-2	
Days	Person	Floors	Person	Floors
Monday		1st		
Tuesday	T			1st
Wednesday			T	
Thursday				
Friday		5th		
Saturday	U		U	5th

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Now, from I, II-

Days	Person	Floors
Monday	R	
Tuesday	P	1st
Wednesday	T	8th
Thursday	S	
Friday	Q	
Saturday	U	5th

So, clearly P has office on 1<sup>st</sup> floor attend office on Tuesday.

13. D

Even by combining both I and II we cannot find the input of the output given in the question.

14. D

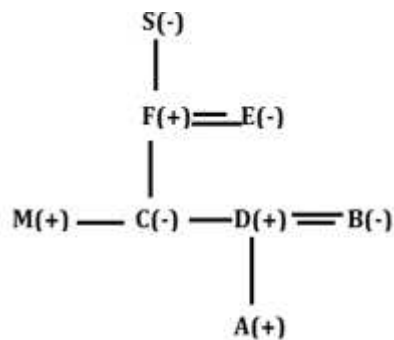
From I,

Floors	Flat-1	Flat-2
5	V/	V/
4		
3		
2	T	Q
1		

From I, II and III-

Floors	Flat-1	Flat-2
5	Y	V
4	P	S
3	W	X
2	T	Q
1	R	U

15. E

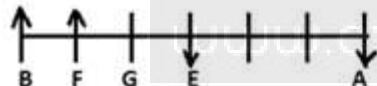


**Solution (16-20)**

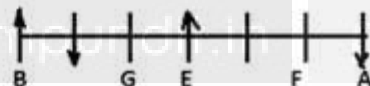
16. E

E does not sit at the end of the row. E sits third to the right of A. A faces south direction. F does not sit at the end of the row. F sits second to the right of E. Immediate neighbour of G faces opposite direction. No one sits on the left of B. A and B faces opposite direction.

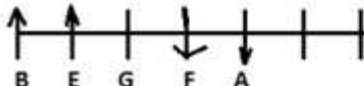
Case 1



Case 2



Case 3



D sit third to the right of C. C and G faces same direction.

Case 2



So, C sits 2<sup>nd</sup> to the left of G.

17. C

From I,

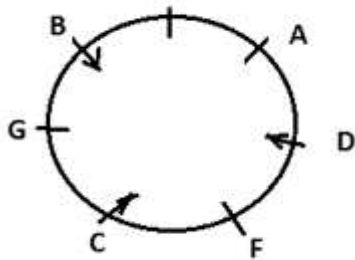
DAYS	Teacher	Subject
Monday	B	
Tuesday		
Wednesday		
Thursday	E	Economics
Friday		Biology
Saturday	C	

From II,

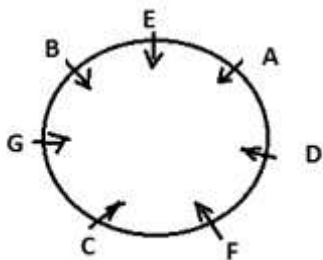
DAYS	Teacher	Subject
Monday		English
Tuesday	E	
Wednesday	A	
Thursday	D	Economics
Friday		
Saturday	C	

18. B

A sits third to the right of C, who sits second to the left of D. Only two person sits between G and A. B is not the immediate neighbour of C. F sits third to the right of B. C faces inside. B is not an immediate neighbour of A.

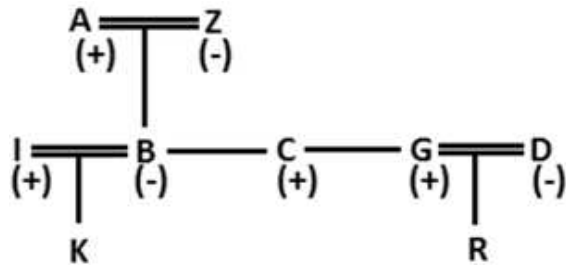


A and G faces same direction. F sits second to the left of A. E sits third to the right of F, and on the immediate left of B. E and B faces same direction.



19. D

From all three statements

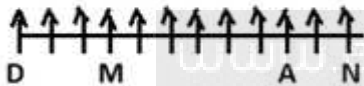


20. B

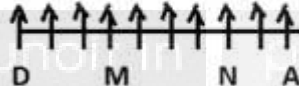
The statement I and III together are sufficient to answer the question;

Step 1:- M sits third to the right of D. Only five persons sits between M and A. More than two person sits between M and N. Only one person sits between N and A.

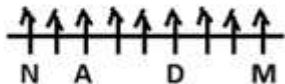
Case 1



Case 2



Case 3



Case 4



Step 2:- B sits exactly between N and A. B sits fifth to the right of R. More than six person sits between R and D. So, case 1 Case 2 and case 4 gets eliminated.

Case 3

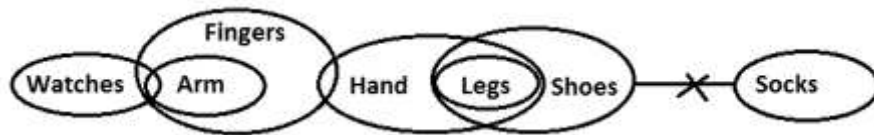


Hence, B sits fourth to the left of D.

**Solution (21-25)**

21. C

Combining both the statements II and III we get,



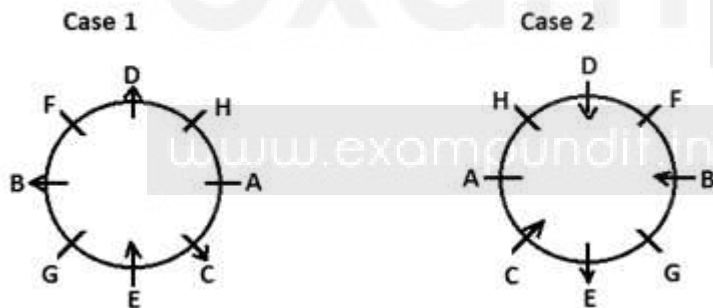
I. From the venn diagram it is clear that all legs are hand, all legs are shoes and no shoes is socks. Hence, we can conclude that some hands are not socks.

II. From the venn diagram it is clear that all legs are shoes and no shoes are socks. Hence, we can conclude that no legs are socks.

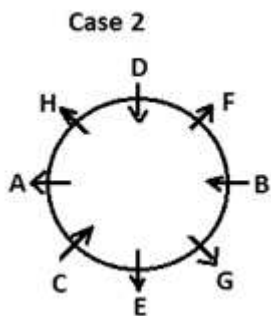
22. A

Using statements, I and II.

A sit second to the right of E and second to the right of D. C and G are the immediate neighbour of E. H sits second to the left of C, who sits third to the left of B.



Now, not more than two persons sitting adjacent to each other faces same direction. F does not face inside. H and A face same direction. C and G face opposite direction. So, case 1 gets eliminated.



Therefore, 5 persons facing outside

23. A

Combining the statements we get,

8	L
7	H
6	N
5	K
4	J
3	M
2	I
1	O

24. C

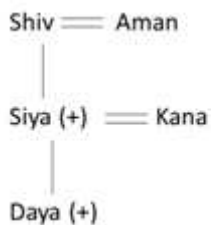
From Statement I: As all the members were not included in the statement we can not decide who is youngest.

From Statement II: As all the members were not included in the statement we can not decide who is youngest.

From Statement III: As all the members were not included in the statement we can not decide who is youngest.

Combining Statement I and II: There is no information about Daya we cant decide who is youngest.

Combining Statement II and III:



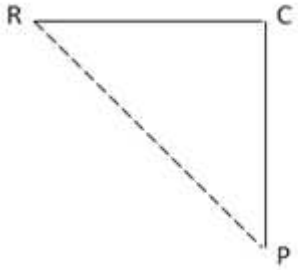
And Deepa is not the youngest. So we can decide that Daya is the youngest member of the family.

25. C

**Solution (26-30)**

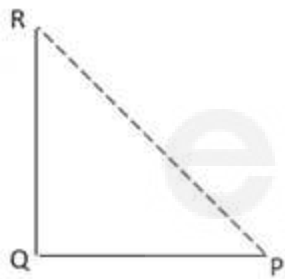
26. C

From statement (i), C is in the north of P and R is in the west of C.



Hence, concluded that R is in North-West of P.

From statement (ii), Q is in west of P and R is in the North of Q.



Hence, concluded that R is in North-West of P.

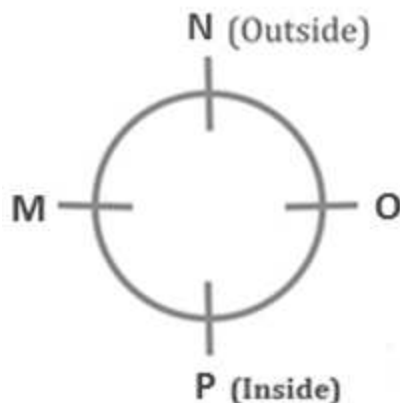
From statement (iii), R is in the north-west direction of P.

So, all three statements are individually correct.

Hence, either statement (i) alone or statement (ii) alone or statement (iii) alone is sufficient to answer the question.

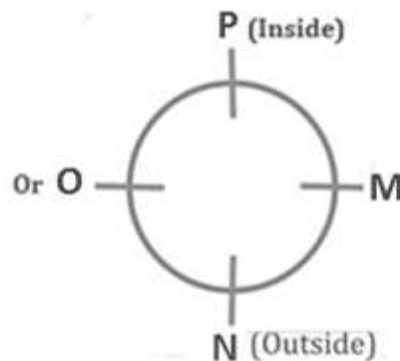
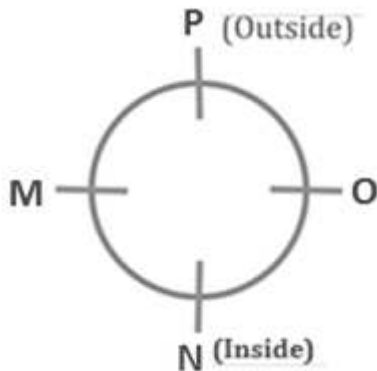
27. C

I.

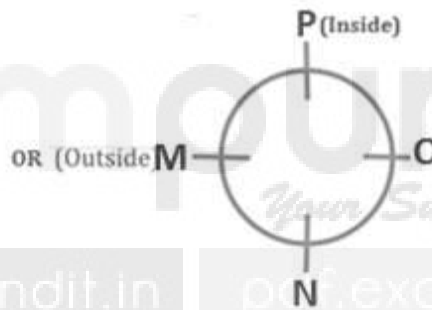
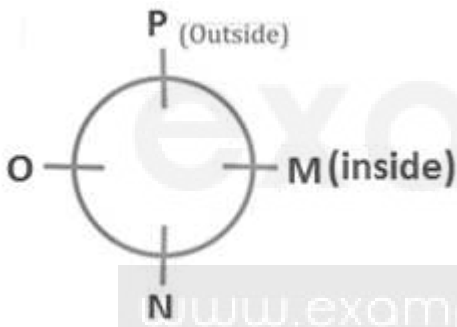


II.





III.



I, II or III statement alone are sufficient to conclude that M, N, O and P are all not facing to centre of table.

28. C

Sol. From II and III-

6. A

5. E

4. C

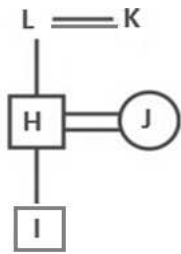
3. D

2. B

1. F

It is clear that F is living on the Ground floor

29. D



From statements II and III, I is the youngest because G is not youngest.

30. A

From I, A is either at 8th position or 4th from left end. Now from II, C is sitting at 8th position from the left end. So from I and II, A is at 4th position from left end.

from II, there are 20 people in row, so 17th from right end

From I and III, answer cannot be found because total number of people in row is not given

**Solution (31-35)**

31. B

From I and II, A is immediate right of B

Also from II and III, A is immediate right of B

32. D

Statement I does not tell the gender of Anil, so brother/sister of Bhuvan. From III: Kiran is sister so female. So Anil is male, so is brother of Bhuvan

From statement II, Tina is daughter of Bhuvan and Rani (mother). Anil is the brother-in-law of Rani so is son of Bhuvan's parents, so he is brother of Bhuvan.

33. C

From all statements, The order from left to right is – A....B.....F....E....D.....C

So D is at 2nd position from right end of row

34. C

From I and II: stem = gi, so from I, plant = az

From II and III: plant and stem is od or az. AND plant and leave is az or er. So plant = az

35. D

From II: Arrangements is D \_\_ A \_\_ B C. Now from III, 4 people are sitting to the right of A. So 7 people in row.

From I and III: We get 2 arrangements:

F B C A \_ \_ \_ \_ OR F \_ \_ A \_ B C \_

In both we get 8 people. So can be determined from I and III.

From I and II: Arrangement is F D S A E B C. But D is also at extreme end. So this arrangement is not possible.

**Solution (36-40)**

36. E

Statements I and II connect the points. But statement III which tells about point K cannot connect to other points in I and II.

37. A

From all I, II and III, O is north-west of I

38. D

From I and II, B is father of G. P has only 2 sons and one is S, so other is B. Now: E and G are siblings who are grandchildren of A and G is niece of S. So B is father of E and G.

From I and III also, B is father of G.  $\therefore$  E and G are siblings who are grandchildren of A. means are children of either S or B. But since E is the daughter of D and D is sister of H and H is sister-in-law of B means B is husband of D hence father of E and G

39. C

From I and II

We get 2 arrangements as:

C A B E D and E A B C D

In both arrangements, B is in middle.

From II and III

A B E C D.

40. C

From statement I:

There is only one floor between K and J. I is living in even number floor.

From statement II:

M is not living in even number floor. J is living in even number floor. J is not living in top floor.

From statement III:

L is living in odd number floor. There are two floors between L and I. M is living immediate above of K.

From statement II and III together:

Person	Floor
I	6 <sup>th</sup>
M	5 <sup>th</sup>
K	4 <sup>th</sup>
L	3 <sup>rd</sup>
J	2 <sup>nd</sup>
N	1 <sup>st</sup>

Hence, II and III together are required to answer the question.

**Solution (41-45)**

41. E

From statement I:

Z is heavier than B.

$Z > B$

From statement II:

Y is not as heavy as either A or Z.

$A > Y$  or  $Z > Y$

From statement III:

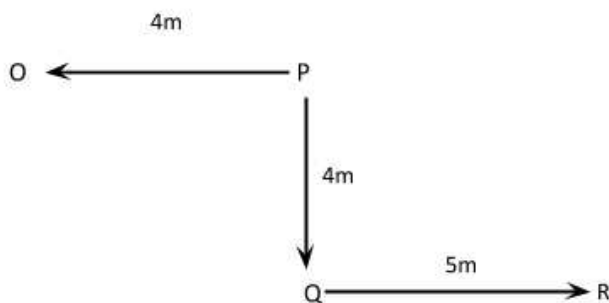
B is neither the heaviest nor the lightest.

Question cannot be answered with all the statements together.

42. A

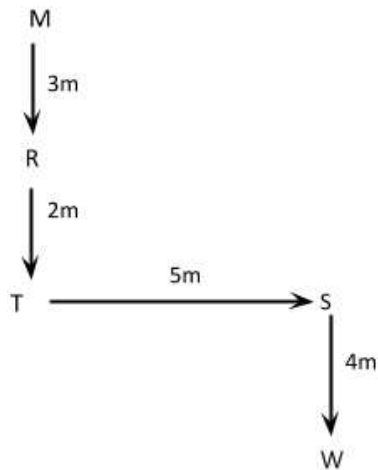
From statement I:

O is 4m to the west of P, P is 4m to the north of Q. R is 5m to the east of Q.



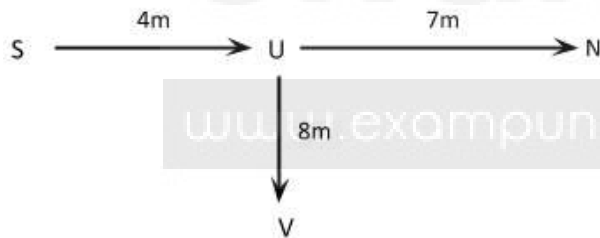
From statement II:

R is 3m to the south of M. S is 5m to the east of T. T is 2m to the south of R. W is 4m to the south of S

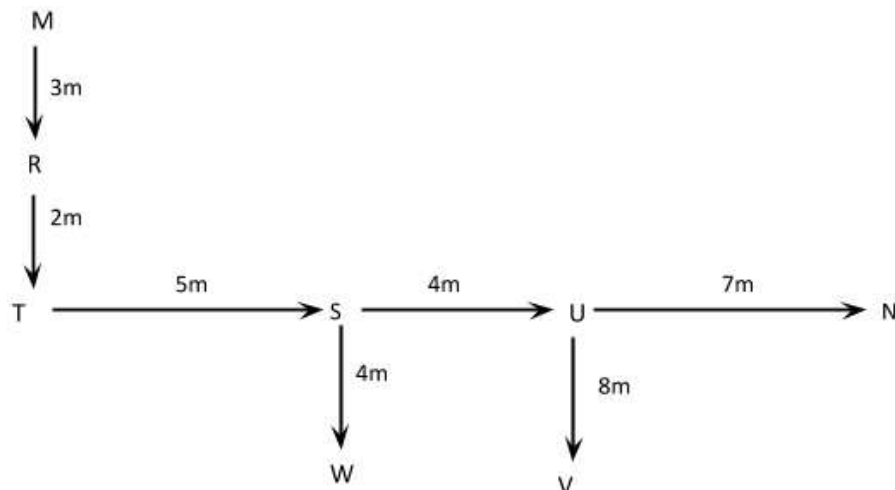


From statement III:

U is 7m to the west of N. S is 4m to the west of U. V is 8m to the south of U.



From statement II and III together:



Hence, statement II and III together are required to answer the question.

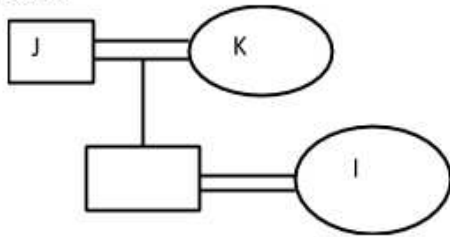
43. D

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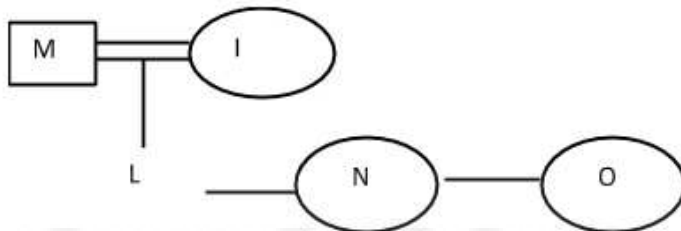
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From statement I:

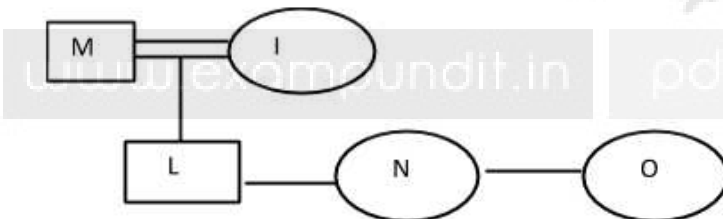


From statement II:



From statement III:  
M has only one boy.

From statement II and III together:



Hence, question can be answered with statements II and III together.

44. D

From all the statements together:

‘one’ is coded as ‘ur’.

45. D

From all the statement I,II,III we get,

Watch	Day
E	Monday
F	Tuesday
C	Wednesday
D	Thursday
B	Friday

A	Saturday
---	----------

**Solution (46-50)**

46. B

From I&III, meaningful word = AROUND

47. A

From I&II,  $R > Q > S > V > T > P$

48. E

49. A

From I and II we get the information that R is Daughter in Law of p

50. C

By Statement I,

7 C

6 F

5 A

4 D

3 B

2 G

1 E

By Statement II,

7 A

6 D

5 B

4 F

3 C

2 G

1 E

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**Directions (Q.1-5):** Each of the questions below consists of a question and three statements numbered I, II and III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read the question and all three statements and give answer accordingly.

**1. Among P, Q, R, S, T and U each having a different weight, who is the heaviest?**

I. P is lighter than S, who is lighter than R.

II. R is lighter than only T.

III. S is heavier than U.

a. Only I and II

b. Only II and III

c. Only II

d. Either I and II or II and III

e. Data inadequate

**2. P is in which direction with respect to D?**

I. A is north of D, who is the east of B. F is southeast of B.

II. B is west of D. M is northeast of B.

III. D is south of A. M is east of D and south of P.

a. Only I and II

b. Only I and III

c. Only II and III

d. Only III

e. All I, II and III

**3. P, Q, R, S, T and V are members of a family. How is V related to P?**

I. R is daughter of P but P is not her mother.

II. S is spouse of P. T is a grandmother of S.



III. R is sister of Q. V is spouse of Q.

- a. Only I and II
- b. Only I and III
- c. Only II and III
- d. All I, II and III
- e. All I, II and III together are not sufficient

**4. A, B, P, Q, S and T has the seminars on 18th and 25th in the month of April, May and June. Who among them has the seminar on May 18th?**

- I. B has the seminar on 18th in the month, which has 30 days. Only two persons have seminar between B and Q.
- II. P and Q have the seminar on same month. No person has the seminar before P.
- III. B and S have seminar on same month. A and S have not in same date.

- a. Only I
- b. Only I and II
- c. Only II and III
- d. All I, II and III together are sufficient
- e. All I, II and III together are not sufficient

**5. What does 'important' represent in the given code language?**

- I. 'sa ri mn pa' means 'work out important problems'
- II. 'fe ze pi' means 'very intelligent girl'
- III. 'ze mn sa' means 'very important work'

- a. Only I and III
- b. Only I and II
- c. Either I and II or I and III
- d. All I, II and III together are sufficient
- e. All I, II and III together are not sufficient

**Directions (6–10): Each of the following below consists of a question and three statements numbered I, II and III given below it. You have to decide whether the data provided in the statement are sufficient to answer the question.**

**6. How many daughters does P have?**

- I. B and D are sisters of M.
  - II. M's father T is husband of P.
  - III. Out of the three children whom T has, only one is a boy.
- a. I and III
  - b. All I, II and III are required to answer the question
  - c. II and III
  - d. Question can't be answered even with all I, II and III
  - e. I and II

**7. Who among P, Q, R, S, T and U each having a different height, is the tallest?**

- I. Q is taller than P, but shorter than T.
  - II. Only two of them are shorter than R.
  - III. S is taller than only U.
- a. I and II
  - b. I and III
  - c. II and III
  - d. All I, II and III are required to answer the question
  - e. All I, II and III are not sufficient to answer the question.

**8. Towards which direction is House J from House W?**

- I. House R is to the West of House W and to the North of House T.
  - II. House Z is to the East of House J and to the South of House T.
  - III. House M is to the North-East of House J and North of House Z.
- a. Only III
  - b. II and III
  - c. All I, II and III are required to answer the question
  - d. Question can't be answered even with all I, II and III
  - e. None of the above

**9. On which day starting from Monday did Mayank visit Chennai?**

- I. Mayank took leave on Wednesday.

- II. Mayank visited Chennai the day after his mother's visit to his house.
- III. Mayank's mother visited Mayank's house neither on Monday nor on Thursday.
- a. II and III
- b. I and II
- c. I and III
- d. All I, II and III are required to answer the question.
- e. Question can't be answered even with I, II and III.

**10. City A is in which direction with respect to City E?**

- I. A is to the north of F, which is to the west of C.
- II. A is to the north-west of C.
- III. F is to the north-west of E.
- a. Any two of the given three
- b. Only I and II
- c. Only II and III
- d. Only I and III
- e. None of these

**Directions (11-15): Each of the questions below consists of question and three statements numbered I, II, III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question.**

**11. What will be the day on 15th August of the next year?**

- I. 7th March of the next year will be Tuesday.
- II. Next year will be a leap year.
- III. Present year is not a leap year.
- a. Only I
- b. Only I and II
- c. Only I and III
- d. All I, II & III
- e. Data inadequate

**12. How many sons does S have?**

- I. A's father R is a husband of S.
  - II. Out of the three children of R, only one is a girl.
  - III. R and B are brother of A.
- a. Only I and III
  - b. All I, II & III
  - c. Only II & III
  - d. Data inadequate
  - e. Only I and II

**13. How is 'bold' written in a code language?**

- I. 'Copper hear nominal well' is written as 'Xz Ix Nq Zi' in that code language .
  - II. 'you come well copper' is written as 'Ji Ix Xz Zi' in that code language .
  - III. 'well bold copper hear nominal' is written as 'Nq Mu Ix Zi Xz ' in that code language.
- a. Only I & II
  - b. Only II & III
  - c. Only I & III
  - d. Data inadequate
  - e. All are required

**14. Who among A, B, C, D, E and F is the tallest?**

- I. Only two of them are taller than C.
  - II. D is shorter than F.
  - III. C is taller than A but shorter than F and B.
- a. Only I and II
  - b. Only II and III
  - c. Only I and III
  - d. Data inadequate
  - e. All are required

**15. What is the direction of village P with respect to village W?**

- I. Village P is to the east of village A and to the south of village B.

II. Village X is to the south of village P and village W is 2m away from village X.

III. Village M is to the north east of village P and W is to the east of village X.

- a. Only III
- b. Only I and II
- c. Only II and III
- d. Question cannot be answered even with all I, II & III
- e. None of these

**Directions (16-20): Each of the questions below consists of question and three statements numbered I, II, III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question.**

**16. Who among P, Q, R, S and T is the shortest?**

I. Q is shorter than P and S and taller than T.

II. P is taller than Q and shorter than S.

III. R is taller than T.

- a. Only I
- b. Only I and II
- c. Only I and III
- d. Either I or III
- e. All I, II and III together

**17. How many students are there in a row? All students are facing north.**

I. Om is twelfth from the left end.

II. Piyush is eighth to the left of Rakesh, who is thirteenth from the right end and eighteenth from the left end.

III. Ritika is eleventh from the left end and is ninth to the left of Sanjay, who is fourteenth from the right end.

- a. Only I
- b. Only II
- c. Both I and III
- d. Either II or III
- e. None of these

**18. Among five friends A, B, C, D and E each studies in a different standard, viz 3rd, 4th, 5th, 6th and 8th. In which standard does C study?**

- I. B studies in a standard which is an odd number. C is B's senior but does not study in 8th standard.
- II. Only three students are senior to A. B is senior to A but junior to C.
- III. D is not junior to E.

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

**19. In a five – floor building, on which floor does Kirti live? (Starting from first floor going up to fifth floor)**

- I. Kirti lives immediately above Rakesh's floor, who lives immediately above Pankaj's floor.
- II. Luv lives on the top floor.
- III. Tanuj lives immediately above Kirti. Pankaj lives on an odd numbered floor.

- a. Only I
- b. Only II
- c. Both II and III
- d. Both I and III
- e. None of these

**20. How is P related to Q?**

- I. R is the cousin of Q and niece of P.
- II. P's sister S, who is wife of T, who is father of Q.
- III. P is a female.

- a. Only I and III
- b. Only II and III
- c. Only I and II
- d. Either I or II or III
- e. None of these

**Directions (21-25):** Each of the questions below consists of question and three statements numbered I, II, III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question.

**21. Who among J, K, L, M and N was the first to reach the station?**

I. K reached earlier than N. J and K were not the first to reach.

II. J reached earlier than both L and N, but could not reach earlier than M, who was at the station before K.

III. L didn't reach just after J.

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

**22. There are six letters B, C, P, U, I and L. Is 'PUBLIC' the word formed after performing the following operations using these six letters only?**

I. I is placed third to the right of U, which is immediate left to B.

II. C is placed second to the right of L. The word begins with P.

III. C is placed third to the right of B. L is not an immediate next to P.

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

**23. Who is the daughter - in - law of D?**

I. K is brother of F. U is wife of L's nephew.

II. T is brother of P. V is son of P. U is mother of V.

III. D is wife of F. F is father of P. F has two children.

- a. Only I and III
- b. Only II and III
- c. Only I and either II or III

d. Only I and II

e. Question cannot be answered even with the information given in all three statements.

**24. Point L is in which direction with respect to Point T?**

I. Point C is to the west of point D. Point L is to the north of point C. Point O is to the north of point T and is to the east of point D.

II. Point N is to the south of point C. Point T is to the west of point N while point L is to the east of point C.

III. Point O is to the south of point T, which is to the west of point V. Point S is to the north of point L and is to the east of point V.

a. Only I is sufficient to answer the question.

b. Only I and II are sufficient to answer the question.

c. Only I and III and are sufficient to answer the question.

d. All I, II and III are required to answer the question.

e. Only I or only II or only III are sufficient to answer the question.

**25. In a five floor building, on which floor does Manav live? (Starting from first floor going up to fifth floor)**

I. Manav lives just above Kriti's flat, whose flat is just above Rakesh's flat.

II. Umesh lives on top floor.

III. Deepak lives just above Manav's flat. Rakesh lives on the first floor.

a. Only I is sufficient

b. Only II is sufficient

c. Both II and III are sufficient

d. Both I and III are sufficient

e. All I, II and III are sufficient

**Directions (26-30): Each of the questions below consists of question and three statements numbered I, II, III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question.**

**26. Seven persons A, B, C, D, E, F and G are living in seven different floors. Ground floor is numbered as one and the above floor is numbered as two and so on till the topmost floor is numbered as seven. Then F lives in which floors?**



- I. E lives in the odd numbered floor below A. The numbers of floors above C is same as below D.
- II. There are two floors between where B and A lives. G does not live in the even numbered floor. E lives immediately above D who lives in the odd numbered floor.
- III. A lives in an even numbered floor. B lives below third floor. F lives below C. C lives two floors below G.
- a. Only I and III are sufficient to answer the question
- b. Only I and II are sufficient to answer the question
- c. Only II and III are sufficient to answer the question
- d. All I, II and III are sufficient to answer the question
- e. Only I and either II or III are sufficient to answer the question

**27. Six persons N O, P, Q, R and S are studying in a school. Each of them has different heights but not necessarily in the same order. Who among the following persons is the tallest in the school?**

- I. R and Q are not either tallest or shortest. Q is taller than S but shorter than R. Only three persons are taller than O. P is the tallest. O is taller than N.
- II. N is taller than R but shorter than Q. P is shorter than S. Q is not the tallest.
- III. P is not the shortest but shorter than N. S is not the tallest.
- a. Only I and II are sufficient to answer the question
- b. Only I is sufficient to answer the question
- c. All I, II and III are not sufficient to answer the question
- d. All I, II and III are sufficient to answer the question
- e. Either only I alone or both II and III are sufficient to answer the question

**28. In which direction is point C with respect to A?**

- I. R is in the north of A and C is in the west of R.
- II. B is in west of A and C is in the North of B.
- III. C is in the north-west direction of B, which is in the north of A.
- a. Only I and II are sufficient to answer the question.
- b. Only I alone is sufficient to answer the question.
- c. Either statement I alone or statement II alone or statement III alone is sufficient to answer the question.
- d. All the statement I, II and statement III are sufficient to answer the question.
- e. None of the statement I, II and III is sufficient to answer the question.

**29. How is N related to U?**

- I. N's father S is brother of T. T is U's wife.
  - II. N is son of S. S is brother of T. T is U's wife.
  - III. U is father of two children.
- a. Only I
  - b. Only II
  - c. Only I and II
  - d. Only II and III
  - e. None of these

**30. What is P's rank from the top in a class of 60 students?**

- I. P is exactly in the middle of Q and R.
  - II. Q is 30th from the top and R is 4th from the bottom.
  - III. P is 3 ranks below S, who is 20th from the bottom.
- a. Only II
  - b. Only II and III
  - c. Either only III or only I and II
  - d. Only III
  - e. None of these

**Directions (31-35): Each of the questions below consists of question and three statements numbered I, II, III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question.**

**31. Among five friends S, T, U, V and W, in which direction is S with respect to W?**

- I. S is to the west of V and to the south of U. U is to the west of W.
  - II. T is to the west of U and southeast of V, who is north of S. V is to the east of W.
  - III. W is to the south of V and north of T, who is to the west of S.
- a. Only I and II
  - b. Only I and III
  - c. Only II and III
  - d. Any one of the three

e. All I, II and III together

**32. What does the code 'ld' stand for in the given code language?**

I. In the language, 'eight infrastructure sectors' is coded as 'cf wx qa' and 'of coal crude' is coded as 'jb yj ra'.

II. In the language, 'coal oil natural' is coded as 'ty ld yj' and 'oil coal infrastructure' is coded as 'yj qa ld'.

III. In the language, 'of refinery Products' is coded as 'uo ra wx' and 'fertilisers oil natural' is coded as 'ld xz ty'.

a. Both II and III

b. I and either II or III

c. II and either I or III

d. Both I and III

e. All I, II and III

**33. There are seven members in a family. How is K related to O?**

I. N and L are children of M, who is wife of K.

II. Q is brother of P, who is daughter of N.

III. O is son – in – law of N.

a. Only I and II

b. Only II and III

c. Only I and III

d. Only I or II or III

e. All I, II and III together.

**34. Eight persons P, O, S, T, U, R, E and D are living in eight floors building but not necessarily in the same order. The lowermost floor is numbered as one and the above floor is numbered as two and so on till the topmost floor is numbered as eight. Who lives in the topmost floor?**

I. S lives in even numbered floor but not lives above fifth floor. Two persons live between S and D.

II. Four persons live between P and D. E lives on adjacent floor of T.

III. As many persons live between S and T is same as S and R. K lives above R. O lives in second floor. E lives on adjacent floor of T and P.

a. Only I and III are sufficient to answer the question

b. Only II and III are sufficient to answer the question

c. All I, II and III together sufficient to answer the question

d. Either both I and II or only III is sufficient to answer the question

e. All I, II and III together not sufficient to answer the question

35. On which day of the week did Pooja arrive?

I. Her sister, Kiran, correctly remembers that she did not arrive on Monday.

II. Her friend, Suman, correctly remembers that she arrived before Friday.

III. Her father correctly mentions that she arrived before Friday but after Tuesday.

a. Only I and II

b. Only II and III

c. Only I and III

d. All I, II and III

e. Data inadequate

**Directions (36-40):** Each of the questions below consists of question and three statements numbered I, II, III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question.

36. There are seven persons i.e. A, B, C, M, K, T and L in a family. Find that K is paternal uncle of T?

I. M is brother of K and is married to L, who is mother of A. A is sister of T.

II. B is brother of A. C is the only son of K.

III. B is the only son of K, who is the brother-in-law of L. C is sister of B

a. If the data in statement I and II together are sufficient to answer the question, while the data in statement III are not required to answer the question.

b. If the data in statement I and III together are sufficient to answer the question, while the data in statement II are not required to answer the question.

c. If the data in statement II and III are sufficient to answer the question, while the data in statement I are not required to answer the question.

d. If the data in all three statements I, II and III together are necessary to answer the question.

e. If the data in all the statements, I, II and III even together are not sufficient to answer the question.

37. Who among M, N, P, Q, R and S is the heaviest?

I. P is heavier than only two of them. S is heavier than R and Q.

II. R is lighter than both Q and N but N is heavier than P but lighter than both S and M.

III. S is lighter than M.

a. If the data in statement I and II together are sufficient to answer the question, while the data in statement III are not required to answer the question.

b. If the data in statement I and III together are sufficient to answer the question, while the data in statement II are not required to answer the question.

c. If the data in statement II and III are sufficient to answer the question, while the data in statement I are not required to answer the question.

d. If the data in all three statements I, II and III together are necessary to answer the question.

e. If the data in all the statements, I, II and III even together are not sufficient to answer the question.

**38. There are six persons A, B, C, D, E and F sitting in a row facing north. Who among the following sits 2nd to the right of C?**

I. C sits 2nd to right of the one who sits at the left end of the row. A does not sit any of the extreme end.

II. A sits on the immediate left of B, who sits 4th to the right of C.

III. D sits 2nd to the left of E. D sits at one of the ends.

a. If the data in statement I and II together are sufficient to answer the question, while the data in statement III are not required to answer the question.

b. If the data in statement I and III together are sufficient to answer the question, while the data in statement II are not required to answer the question.

c. If the data in statement II and III are sufficient to answer the question, while the data in statement I are not required to answer the question.

d. If the data in all three statements I, II and III together are necessary to answer the question.

e. If the data in all the statements, I, II and III even together are not sufficient to answer the question.

**39. How G is related to M?**

I. N is brother G. A is sister of N. K is mother of B.

II. G is the brother B, who is the son K.

III. M is married to K.

- a. If the data in statement I and II together are sufficient to answer the question, while the data in statement III are not required to answer the question.
- b. If the data in statement I and III together are sufficient to answer the question, while the data in statement II are not required to answer the question.
- c. If the data in statement II and III are sufficient to answer the question, while the data in statement I are not required to answer the question.
- d. If the data in all three statements I, II and III together are necessary to answer the question.
- e. If the data in all the statements, I, II and III even together are not sufficient to answer the question.

**40. What does the code 'lz' stands for in the given coded language?**

- I. In a language, 'Sun water roof' is coded as 'am nl or' and 'food room plate' is coded as 'st od wa'
- II. In a language, 'stem plant leave' is coded as 'eraz op' and 'food plate water' is coded as 'odstnl'
- III. In the language, 'flower air Sun' is coded as 'pa am lz' and 'food plant leave' is coded as 'az od er'

- a. If the data in statement I and II together are sufficient to answer the question, while the data in statement III are not required to answer the question.
- b. If the data in statement I and III together are sufficient to answer the question, while the data in statement II are not required to answer the question.
- c. If the data in statement II and III are sufficient to answer the question, while the data in statement I are not required to answer the question.
- d. If the data in all three statements I, II and III together are necessary to answer the question.
- e. If the data in all the statements, I, II and III even together are not sufficient to answer the question.

**Directions (41-45): Each of the questions below consists of question and three statements numbered I, II, III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question.**

**41. How is H related to C?**

- I. M has two daughters. One of them is Z, who is married to H.
- II. C is the mother of Y, the younger sister of Z.

III. M is C's husband.

- a. Only I and II
- b. Only I and III
- c. Only I and either II or III
- d. Any two of the three
- e. All are necessary

**42. On which day of the week did Renu arrive?**

- I. Her sister, Teena, correctly remembers that she did not arrive on Wednesday.
- II. Her friend, Meena, correctly remembers that she arrived before Friday.
- III. Her mother correctly mentions that she arrived before Friday but after Tuesday.

- a. Only I and II
- b. Only II and III
- c. Only I and III
- d. All I, II and III
- e. Data inadequate

**43. Who among Rajesh, Jeeva, Akash and Nilesh is the heaviest?**

- I. Jeeva is heavier than Neetu.
- II. Rajesh is not as heavy as either Akash or Jeeva.
- III. Nilesh is neither the heaviest nor the lightest.

- a. Only I and II
- b. Only II and III
- c. Only I and III
- d. All I, II and III together
- e. None of these

**44. City A is in which direction with respect to City E?**

- I. A is to the north of F, which is to the west of C.
- II. A is to the north-west of C.
- III. F is to the north-east of E.

- a. Any two of the given three

- b. Only I and II
- c. Only II and III
- d. Only I and III
- e. None of these

**45. Arun, Mani, Ravi, Sahil and Mohan are sitting around a circular table facing the centre. Who is on the immediate left of Ravi?**

- I. Only Arun is sitting between Mani and Mohan.
- II. Arun is on the immediate left of Mani.
- III. Sahil is on the immediate left of Mani.

- a. All I, II and III together
- b. Only II
- c. Only II and III
- d. Only I and III
- e. None of these

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**Directions (46-50): Each of the questions below consists of question and three statements numbered I, II, III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question.**

**46. In a certain code, 'XYZ' means 'We are friends'. Which letter stands for 'We'?**

- I. 'PYN' means 'They are classmates'.
- II. 'ZMS' means 'We love them'.
- III. 'PX' means 'They friends',

- a. Only II
- b. Only I and III
- c. All I, II and III
- d. Either I only or II only
- e. None of these

**47. Among P, Q, R, S and T, Q is the second tallest and S is immediate taller than the shortest. Who among them is in the middle when they stand in the order of their heights?**



- I. T is not the shortest. Only one person is taller than Q. S is second shortest.
- II. R is taller than S but shorter than Q. Q is not the tallest and S is not the shortest.
- III. P is tallest.
- a. Only I and II
- b. Either II only or I and III only
- c. Only II
- d. Only II and III
- e. None of these

**48. Four subjects - Physics, Chemistry, Mathematics and Biology - were taught in four consecutive periods of one hour each starting from 8.00 a.m. At what time was the Chemistry period scheduled ?**

- I. Mathematics period ended at 10.00 a.m., which was preceded by Biology.
- II. Physics was scheduled in the last period.
- III. Mathematics period was immediately followed by Chemistry.
- a. Only I
- b. Either I only or II only
- c. Only II
- d. Only II and III
- e. Only I and either II or III

**49. What is the total monthly salary of Vasu ?**

- I. Vasu's basic salary is Rs 100 more than Rajan's salary who also serves in Vasu's company.
- II. Other allowances drawn by Rajan besides his basic salary are Rs 2000 per month which is Rs 50 less than Vasu's other allowance drawn.
- III. Rajan's basic salary is Rs 1550 per month.
- a. Only II
- b. Only II and III
- c. Only I and II
- d. Only I and III
- e. All I, II and III

**50. Who is the tallest among six boys P, T, N, D, Q and R?**

I. P is taller than D and N but not-as tall as T.

II. R is taller than Q but not as tall as T.

III. Q is not taller than T and R.

a. Only I and II

b. Only II and III

c. Only I and III

d. All I, II and III

e. Only I and either II or III

Answer Key with Explanation

**Solution (1-5)**

1. C

From I,  $R > S > P$

Hence, It is not sufficient to answer

From II,  $T > R$

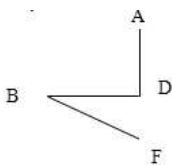
R is lighter than only T. Hence, T is the heaviest among all.

From III,  $S > U$

Statement II only sufficient to answer.

2. D

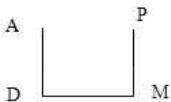
From I,



From II,



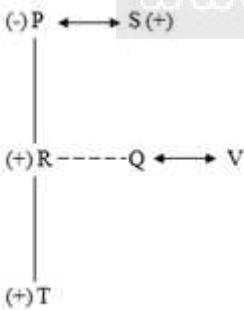
From III,



P is to the northeast of D. Hence, III only sufficient to answer.

3. E

From I, II and III,



The gender of V is not known. Hence, All I, II, III together are not sufficient to answer.

4. D

From I, II, III

Month/date	18 <sup>th</sup>	25 <sup>th</sup>
April	P	Q
May	A	T
June	B	S

Hence, All I, II, III together are sufficient to answer.

5. E

From I, II and III together we can't determine the code for 'important' in the given code language.

**Solution (6-10)**

6. C

7. D

From I,  $T > Q > P$

From II,  $\_ > \_ > \_ > R > \_ > \_$

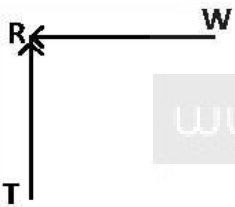
From III,  $\_ > \_ > \_ > S > U$

From all the three statements  $T > Q > P > R > S > U$

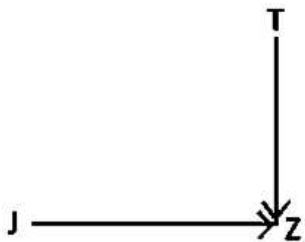
Hence, T is the tallest among them.

8. E

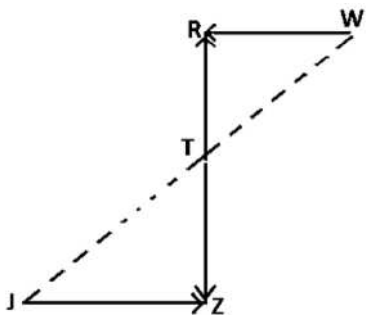
From I,



From II,



From I and II, J is to the South-West of W.



9. E

From all the three statements Mayank's mother can visit his home on Tuesday, Wednesday, Friday, Saturday or Sunday. So (e) is the correct option.

10. D

**Solution (11-15)**

11. A

Using statement I alone, we can say that 15th August will be Tuesday.

12. E

From statement (I) we can conclude that R and S are husband and wife respectively and then from statement II we can conclude that they have two sons and one daughter.

13. C

Using I and III we can say that the code for 'bold' is 'Mu'

14. D

Even after using all the statements, we can only say that the tallest will be either F or B but we cannot definitely say that who is the tallest.

15. C

Using statements II and III, we can say that village P is in north-west direction with respect to village W.

**Solution (16-20)**

16. C

From I.

$P, S > Q > T$

From II.

$S > P > Q$

From III.

$R > T$

From I and III.

$P, S > Q > T$  and  $R > T$ .

Hence T is the shortest.

17. D

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From I.

Om is twelfth from the left end.

From II.

Total number of students in row =  $18 + 13 - 1 = 30$

From III.

Total number of students in row =  $11 + 9 + 14 - 1 = 33$

Thus either II or III is sufficient to answer the question.

18. D

From I.

C studies in either 4th or 6th standard.

From II.

C studies in 4th standard and B is senior to A but junior to C.

From III.

D is not junior to E.

From I and II.

B studies in 5th standard and C studies in 6th standard.

Thus both I and II are sufficient to answer the question.

19. D

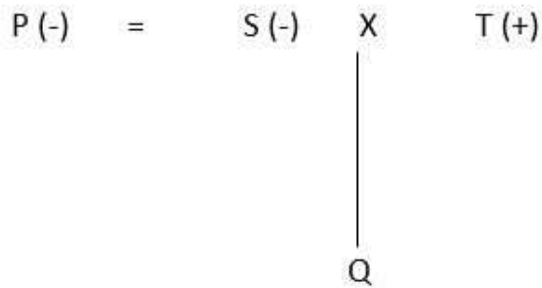
From I and III.

Floor	Person
5	
4	Tanuj
3	Kirti
2	Rakesh
1	Pankaj

Thus both I and III are sufficient to answer the question.

20. B

From II and III.



P is aunt of Q. Thus both II and III are sufficient to answer the question.

**Solution (21-25)**

21. C

From I.

$K > N$  (K is earlier than N) and J and K are not first.

From II.

$J > L$ , N (J reached earlier than L and N) and also  $M > J$  (M is earlier than J) and  $M > K$  (M was at station before K) so we get M is first to reach the station.

From III.

We can't say anything.

Hence only statement II is sufficient to answer the question.

22. A

From I:

U B \_\_\_\_ I \_\_\_\_ ..... (i)

\_\_\_\_ U B \_\_\_\_ I \_\_\_\_ ----- (ii)

\_\_\_\_ U B \_\_\_\_ I ----- (iii)

From I (ii) and II:

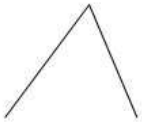
P U B L I C

Hence statement I and II are sufficient to answer the question.

23. B

From II and III.

F (+) X D (-)



T (+) = P (+) X U (-)



V (+)

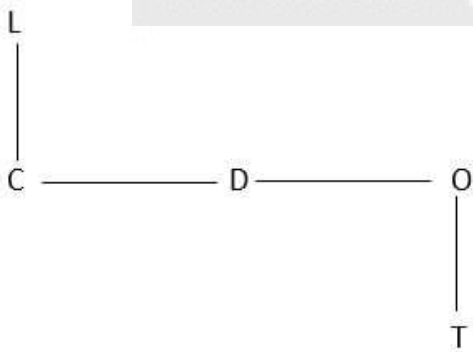
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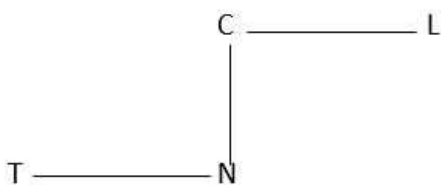
24. E

From I.



L is North West of T. Hence statement I alone is sufficient to answer the question.

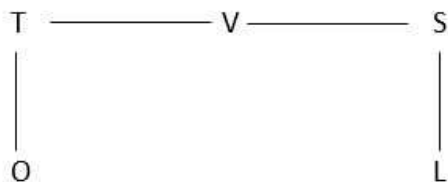
From II.





L is North East of T. Hence statement II alone is sufficient to answer the question.

From III.



25. D

From I and III.

Floor	Person
5	Umesh
4	Deepak
3	Manav
2	Kriti
1	Rakesh

Manav lives on third floor. Hence only I and III are sufficient to answer the question.

**Solution (26-30)**

26. A

F lives on the fourth floor. Thus statement I and III are sufficient to answer the question.

27. E

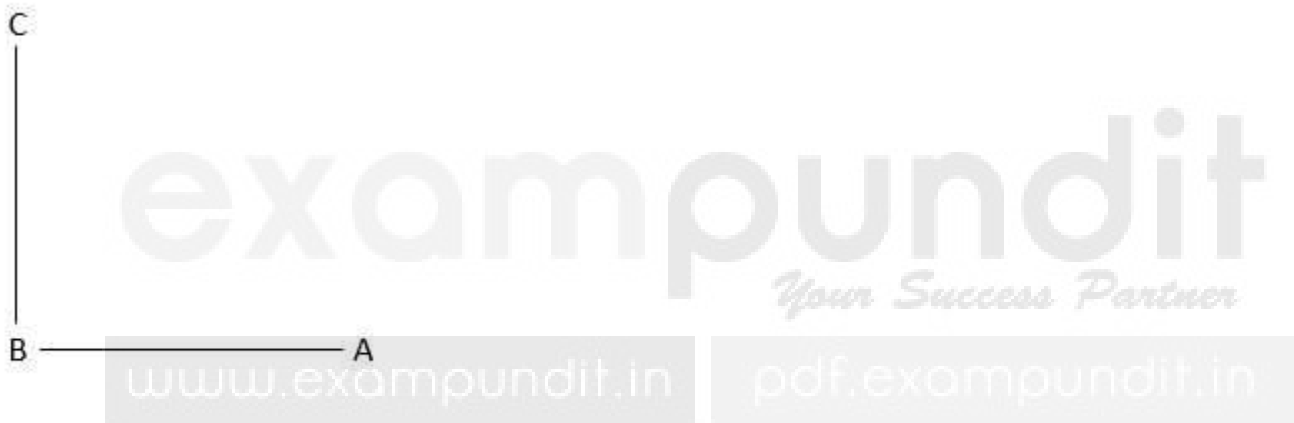
28. C

From I.



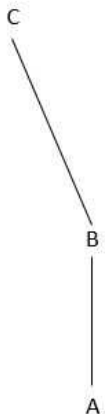
C is in North-West of A. Hence statement I alone is sufficient to answer the question.

From II.



C is in North-West of A. Hence statement II alone is sufficient to answer the question.

From III.



C is in North-West of A. Hence statement III alone is sufficient to answer the question.

29. B

From I.

S (+) = T (-) X U (+)

N

Gender of N is not given.

From II.

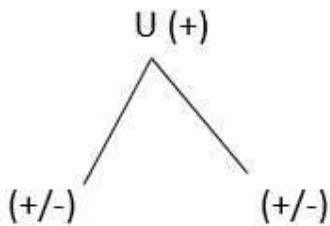
S (+) = T (-) X U (+)

N (+)

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Hence N is nephew of U.

From III.



30. D

From I.

P is exactly between Q and R.

From II.

R's rank from bottom = 4th

Q's rank from top = 30th

R's rank from top =  $60 - 4 + 1 = 57$ th

From I and II.

No rank can come exactly in the middle of 30th (even) and 57th (odd).

From III.

S's rank from bottom = 20th

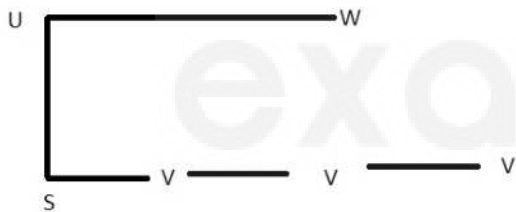
S's rank from top =  $60 - 20 + 1 = 41$ th

P's rank from top =  $41 + 3 = 44^{\text{th}}$

**Solution (31-35)**

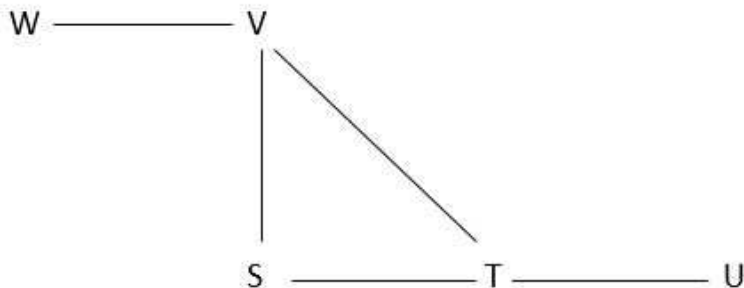
31. D

From I.



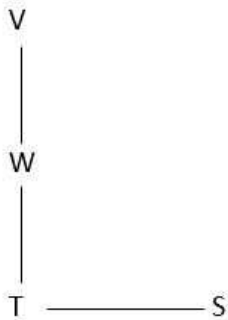
Thus, S is southwest of W.

From II.



Thus, S is southeast of W.

From III.



Thus, S is southeast of W

32. C

From I.

eight infrastructure sectors → cf wx qa ..... (i)

of coal crude → jb yj ra ..... (ii)

From II.

coal oil natural → ty ld yj ..... (iii)

oil coal infrastructure → yj qa ld ..... (iv)

From III.

of refinery Products → uo ra wx ..... (v)

fertilisers oil natural → ld xz ty ..... (vi)

From I(ii) and II.

we get, coal - yj, oil - ld.

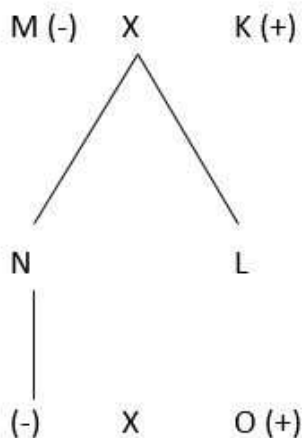
From II and III.

we get natural - ty, oil - ld.

Hence statement II and either I or II is sufficient to answer the question.

33. C

From I and III.



34. A

From I and III.

Floor	Person
8	U
7	P
6	E
5	T
4	S
3	R
2	O
1	D

U lives on the topmost floor.

35. E

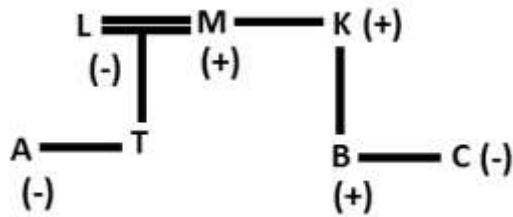
From I and III.

Pooja arrived on either Wednesday or Thursday. As we can't decide one day with the given information, the data given in all three statements is inadequate to answer this question

**Solution (36-40)**

36. B

Using statement I and III, we get our final relation.



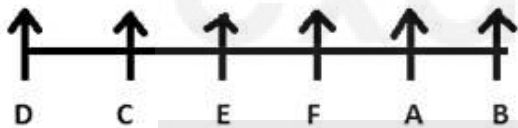
37. D

From statement I, II, III we get the following arrangement. M is the heaviest.

**M > S > N > P > Q > R**

38. C

From II and III we get the final sitting arrangement in which F sits 2nd to the right of C.



39. C

From statement II, and III, we get our final answer.

40. E

All the three statements are not sufficient to answer the question.

**Solution (41-45)**

41. C

Only I and either II or III

M(Father)C(Mother) => 2 Daughters => Y and Z

H is husband of Z

From I alone we can't identify C is male or female

42. C

Only I and III

S M Tu W Th F Sat

She didn't arrive on Wednesday from I

From II => before Friday mean S M Tu Th

From III  $\Rightarrow$  Thursday

43. E

From I:  $J > N$

From II :  $R < A$  or  $J$

From III:  $N$

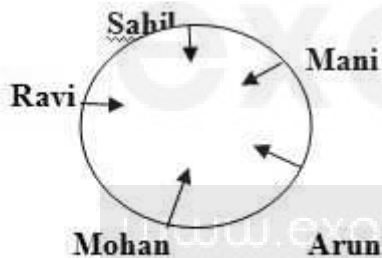
From the given data we can't say  $R$  is heaviest or lightest than  $N$

44. D

Direction of  $E$  is not mentioned in II. Hence from I and III we can say the direction of  $E$  with respect to  $A$

45. D

Only I and III



From I  $\Rightarrow$  Arun is immediate left of Mani so I and III are necessary

**Solution (46-50)**

46. E

To find the code for 'we', we need to have any of the following:

(i) 'We are friends' should have only 'We' common with another statement, as in II;

(ii) 'We are friends' should have only 'are' and 'friends' common with another single or two statements, as in I and III. Thus, we need Either II only or I and III only.

47. B

From the given statement, the descending order of heights is : \_\_, Q, \_\_, S, \_\_.

From II, we have the order: \_\_, Q, R, S, \_\_. Thus, R is in the middle.

From III, we have the order : P, Q, \_\_, S, \_\_. But, according to I, T is not the shortest.

So, R is the shortest. Thus, we have the order : P, Q, T, S, R. So, T is in the middle.

48. E



From I and II, we conclude that Mathematics period began at 9.00 a.m., Biology period began at 8.00 a.m. and Physics period began at 11 a.m. So, the Chemistry period began at 10.00 a.m.

From I and III, we conclude that Mathematics period ended and Chemistry period began at 10.00 a.m.

49. E

From III, we have: Rajan's basic salary = Rs. 1550.

From I, we have: Vasu's basic salary = Rs.  $(1550 + 100)$  = Rs. 1650.

From II, we have: Rajan's other allowances = Rs. 2000 and Vasu's other allowances = Rs. 2050.

Therefore Vasu's monthly salary = Rs.  $(1650 + 2050)$  = Rs. 3700.

50. A

From I, we have:  $P > D$ ,  $P > N$ ,  $T > P$  i.e.  $T > P > D > N$  or  $T > P > N > D$  ...(i)

From II, we have:  $R > Q$ ,  $T > R$  i.e.  $T > R > Q$  ...(ii)

From III, we have:  $T > Q$ ,  $R > Q$  ...(iii)

Clearly, from (i) and (ii), we conclude that T is taller than each one of P, N, D, R and Q. So, T is the tallest.

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**Direction (1-10): Answer the following questions based on the information given below**

**1. If Q is sister of B, who is mother of R, who is daughter of D. How D is related to Q?**

- a. Nephew
- b. Son
- c. Brother-in-law
- d. Grandson
- e. Son or Nephew

**2. Pointing to a photograph, Sahil (boy) said, “She is the mother of my son’s wife’s daughter”. How is Sahil (boy) related to lady?**

- a. Son
- b. Uncle
- c. Father
- d. Father-in-law
- e. None of these

**3. Pointing to a boy, a girl said, “He is the son of only child of my grandfather”. How is the boy related to girl?**

- a. Brother
- b. Uncle
- c. Cousin
- d. Father

e. None of these

**4. A man is said to lady, “Your mother’s husband’s sister is my paternal aunt, who has only one sibling”.**

**How is the lady related to the man?**

- a. Mother
- b. Sister
- c. Daughter
- d. Aunt
- e. Grand daughter

**5. Pointing to Kamal, Sheeba said , “ His mother’s brother is the father of my son Akilesh”. How is Kamal related to Sheeba?**

- a. Niece
- b. Nephew
- c. Aunt
- d. Sister-in-law
- e. None of these

**6. Pointing to a photograph, A boy said, “She is the mother of my son’s wife’s daughter”. How is the boy related to lady?**

- a. Son
- b. Uncle
- c. Father
- d. Father – in – law

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e. None of these

**7. If Kiran(a boy) says, “Rocky’s mother is the only daughter of my mother”, how is Kiran related to Rocky?**

- a. Brother
- b. Father
- c. Uncle
- d. Grand father
- e. None of these

**8. Pointing to a man, Dinesh (a boy) said, “His only brother is the father of my daughter’s father”. How is the man related to Dinesh?**

- a. Father
- b. Grand father
- c. Uncle
- d. Brother
- e. None of these

**9. Aswin (a boy) said, “This girl is the wife of the grandson of my mother”. Who is Aswin to that girl?**

- a. Husband
- b. Father
- c. Brother
- d. Uncle
- e. Father-in-law

**10. A woman introduces a man as the son of the brother of her mother. How is the man related to the woman?**

- a. Son
- b. Nephew

c. Uncle

d. Cousin

e. None of these

**Direction (11-20): Answer the following questions based on the information given below**

**11. A is the sister of B. B is married to C. C is the son of D. A is the mother of E. F is the father of G. F has only 1 son and 1 daughter. G is the daughter of A. H is the son of B. How is H related to D?**

- a. Granddaughter
- b. Daughter
- c. Grandson
- d. Son
- e. None of these

**12. P is brother of Q. R is sister of Q.S is father of R. How is Q related to S ?**

- a. Son
- b. Daughter
- c. Daughter or Son
- d. Sister
- e. None of these

**13. K is brother of T. M is mother of K. W is brother of M. how is W related to T?**

- a. Maternal Uncle
- b. Paternal Uncle
- c. Grandfather
- d. Data Inadequate
- e. None of these

**14. M is daughter of N and sister of L. K is daughter of L and granddaughter of G. F is sister-in-law of M. F has no sibling and is not child of G. L is only sibling of M. How is K related to N?**

- a. Grandson
- b. Granddaughter
- c. Daughter
- d. Daughter-in-law
- e. None of these

**15. X is married to Y. Y is mother of Z. Z is sister of V. Y has only one daughter. V is married to W. R is son of W. T is mother of W. How is X related to R?**

- a. Grandfather
- b. Father
- c. Uncle
- d. Father-in-law
- e. None of these

**16. A family consists of six members A, B, C, D, E and F. E is the son of B but B is not mother of E. C and B are a married couple. A is the brother of B. F is the daughter of C. D is the brother of C. Which among the following is a pair of brothers?**

- a. C and D
- b. A and B
- c. E and F
- d. A and E
- e. A and D

**17. Mohan is the son of Arun's father's sister. Prakash is son of Reva, who is mother of Vikas and**

**Arun's father (prakash). Pranab is father of Neela and grandfather of Mohan. Reva is wife of Pranab. Neela is mother of Mohan. How is Vikas's wife related to Neela?**

- a. Sister
- b. Niece
- c. Sister-in-law
- d. Data Inadequate
- e. None of these

**18. P is son of Q. Q is mother of R. R is wife of T. T is father of V. V is brother of W. Y is mother of T. Which of the following is / are required to established that W is daughter of R?**

- a. No extra information is required as relationship can be established from the given information.
- b. R has only three children, one son and two daughters.
- c. Q has only one grandson.
- d. Y has only two children, a son and a daughter.
- e. Either b or c

**19. C is the mother of A and B. If D is the husband of B, How is C related to D's?**

- a. Mother-in-law
- b. Sister
- c. Mother
- d. Aunt
- e. None of these

**20. There is family of 6 members P, Q, R, S, T and U in which two are married couples. S is the grandfather of P and father of T. Q is the wife of T**

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**and mother of R. P is the granddaughter of S. S and U are married couples. How many males are there in the family?**

- a. two
- b. three
- c. four
- d. can't be determined
- e. None of these

**Direction (21-22): Study the following information carefully and answer the questions given below.**

Five persons B, M, Q, L and T are arranged according to their weight. B is heavier than only one person. Two persons are lighter than Q. T is heavier than L but lighter than M.

**21. Which of the following person is the heaviest?**

- a. L
- b. T
- c. B
- d. M
- e. None of these

**22. How many persons are lighter than T?**

- a. None
- b. One
- c. Two
- d. Three
- e. None of these

**Directions (23-25): Study the following information carefully and answer the questions given below.**

There are 7 friends – A, B, C, D, E, F and G. All have different heights. B is taller than F but shorter than E. E is not the tallest. A is taller than both F and C. C is taller than G. A is taller than only 3 friends.

**23. Who is the tallest of all friends?**

- a. F
- b. G
- c. D
- d. B
- e. Cannot be determined

**24. C can be placed at how many possible positions in the arrangement obtained?**

- a. Other than given in options
- b. One
- c. Two
- d. Three
- e. Cannot be determined

**25. Who is the shortest?**

- a. F
- b. G
- c. D
- d. either option A or B
- e. Cannot be determined

**Directions (26-30): Study the following information carefully and answer the questions given below.**

There are five friends Sachin, Kunal, Mohit, Anuj and Rohan. Sachin is shorter than Kunal but taller than Rohan. Mohit is tallest. Anuj is shorter than Kunal and taller than Sachin.

**26. Who is the shortest?**

- a. . Rohan
- b. Sachin
- c. Anuj
- d. Kunal
- e. None of these

**27. If they stand in the order of their heights, who will be in the middle?**

- a. . Kunal
- b. Rohan
- c. Sachin
- d. Anuj
- e. None of these

**28. Who is the second shortest?**

- a. . Anuj
- b. Sachin
- c. Rohan
- d. Kunal
- e. None of these

**29. Who is the second tallest?**

- a. . Sachin
- b. Kunal
- c. Anuj
- d. Rohan
- e. None of these

**30. Who is taller than Anuj but shorter than Mohit?**

- a. . Kunal
- b. Rohan
- c. Sachin

- d. Date Inadequate
- e. None

**Directions (31-35): Study the information carefully and answer the questions given below.**

Eight persons A, B, C, D, E, F, G and H have different height. G is not 3rd shortest. D is not 5th tallest. Only two persons are taller than C. E is taller than F but shorter than D. H is the shortest. D is taller than G but shorter than A and C. A is not the 2nd tallest. E is not 3rd shortest.

**31. Who among the following is 2nd tallest?**

- a. E
- b. F
- c. C
- d. B
- e. none of these

**32. How many persons are shorter than F?**

- a. Two
- b. One
- c. Three
- d. Four
- e. None of these

**33. Who among the following is just taller to E?**

- a. D
- b. F
- c. C
- d. B
- e. none of these

**34. Who among the following is 5th shortest?**

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- a. E
- b. F
- c. C
- d. B
- e. none of these

**35. Who among the following is third shortest?**

- a. E
- b. F
- c. C
- d. B
- e. none of these

**36. A person has some number of candies. He correctly remembers that it is more than 31 but less than 37. He remembers that it is not a multiple of 11. He also remembers that it is an even number which is less than 36. He does not have 32 candies. What number of candies he has?**

- a. 33
- b. 32
- c. 34
- d. 35
- e. can't be determine

**37. Five persons, A, F, C, D and E are different in their heights. E is taller than at least two people. A is taller than D. F is shorter than C who is shorter than E. D is taller than E. Who among the following is the second tallest person?**

- a. A
- b. F

- c. E
- d. D
- e. Cannot be determined

**38. In a group of 6 students P, Q, R, S, T and U each one having different height. P is taller than T but not as tall as U. Q is taller than P. Q and U are not the tallest and also R is the shortest. Who is the tallest among them?**

- a. P
- b. S
- c. Q
- d. U
- e. None of these

**Directions (39-40): Study the information carefully and answer the questions given below.**

**39. A is shorter than B but taller than C. D is taller than A. E is shorter than C. Who amongst the following is the tallest?**

- a. A
- b. B
- c. D
- d. Either B or D
- e. None of these

**40. Who amongst the following is the shortest?**

- a. A
- b. B
- c. E
- d. Either B or D
- e. None of these

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**41. Ziva rank is 21st from the top and 15th from the bottom in the class. How many students are there in the class?**

- a. 29
- b. 36
- c. 27
- d. 35
- e. None of these

**42. Rohit is 7 ranks ahead of Karan in a class of 39. If Karan's rank is 17th from the last, what will be Rohit's rank from the start?**

- a. 14th
- b. 15th
- c. 16th
- d. 17th
- e. None of these

**43. In a row of 40 children, Q is 14th from the left end and there are 16 children between Q and M. What is M's position from the right end of the row?**

- a. 11th
- b. 10th
- c. 30th
- d. Data Inadequate
- e. None

**44. Unita is 11th from left and right end of a row of girls. How many girls are there in that row?**

- a. 19
- b. 20

- c. 21
- d. 22
- e. 24

**45. In a class of 36 students Ravi's rank from the top is 12. Radhika ranks three places above Ravi. What is Radhika's rank from bottom?**

- a. 27
- b. 28
- c. 26
- d. 29
- e. None of these

**46. Priya and Divya are ranked seventh and twelfth respectively from the top in a class of 35 students. What will be their respective ranks from the bottom in the class?**

- a. 24th and 28th
- b. 29th and 24th
- c. 28th and 23rd
- d. 29th and 34th
- e. None of these

**47. Charu correctly remembers that her father's birthday is after 24th but before 29th of May. Her sister remembers that their father's birthday is after 27th but before 31st May and her brother remembers that the birthday is on an even date. On which date in May is definitely their father's birthday?**

- a. 26th
- b. 28th
- c. 30th



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- d. Data inadequate
- e. None of these

**48. Ashok is 16th from the top and twelfth from the bottom in merit in the class. How many students are there in the class?**

- a. 29
- b. None of these
- c. 28
- d. 27
- e. Cannot be determined

**49. In a class of forty students, Jalal's rank from the top is twelfth. Dhoni is eight ranks below Jalal. What is Dhoni's rank from the bottom?**

- a. 20th

- b. 21st
- c. 22nd
- d. 19th
- e. None of these

**50. Kailash remembers that his brother Deepak's birthday falls after 20th May but before 28th May, while Geeta remembers that Deepak's birthday falls before 22nd May but after 12th May. On what date Deepak's birthday falls?**

- a. 20<sup>th</sup> May
- b. 21<sup>st</sup> May
- c. 22<sup>nd</sup> May
- d. Can't be determined
- e. None of these

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**Answer Key with Explanation**

**Solution (1-10)**

**1. C**

**2. D**

**3. A**

**4. B**

Lady's mother's husband : Father

Lady's father's sister : Aunt. Hence lady is man's sister.

**5. B**

Father of Sheeba's son: Sheeba's husband

Kamal: Sister son of Sheeba's husband. Hence Kamal is Sheeba's Nephew.

**6. D**

**7. C**

Daughter of Kiran's mother – Kiran's Sister.

So Kiran is an Uncle of Rocky.

8. C

Father of Dinesh daughter's father : Dinesh's father

So man is the brother of Dinesh's father.

9. E

Grandson of my mother : son

Wife of Aswin'sson :Aswin's Daughter-in-law.

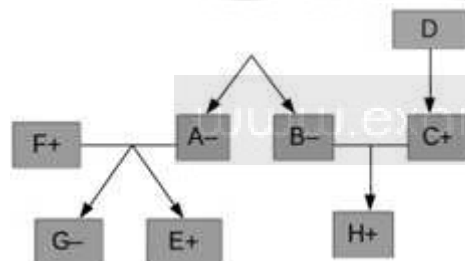
10. D

Brother of mother : Uncle

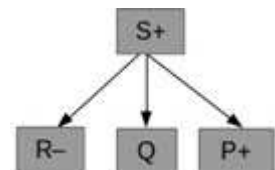
Uncle's son: Cousin.

Solution (11-20)

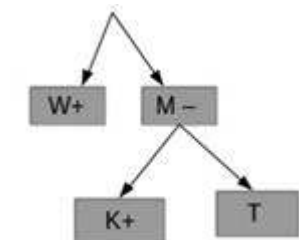
11. C



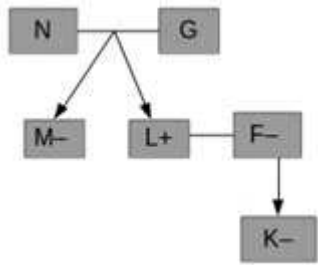
12. C



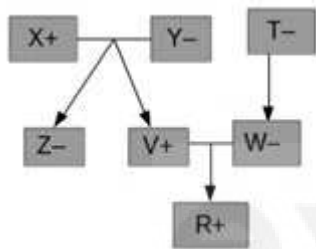
13. A



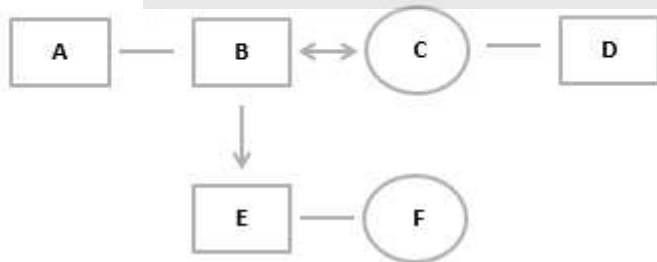
14. B



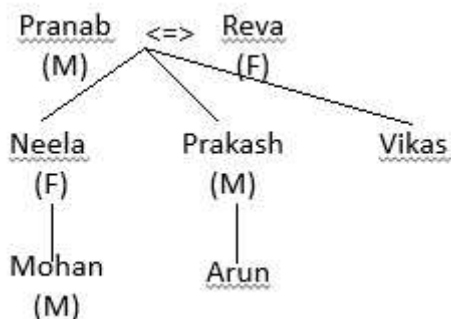
15. A



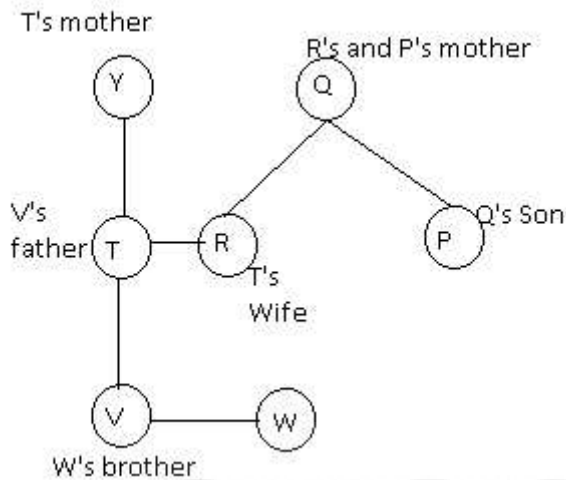
16. B



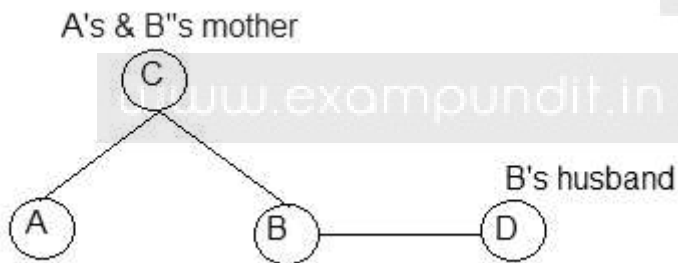
17. C



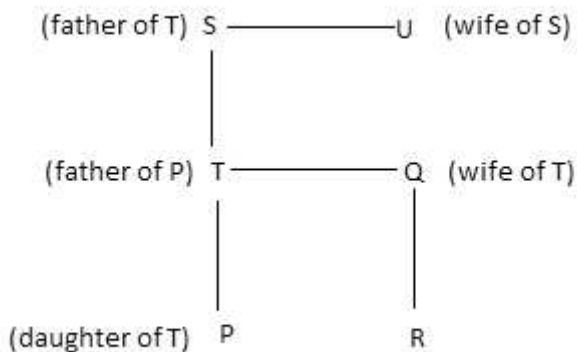
18. E



19. A



20. D



**Solution (21-22):**

M>T>Q>B>L

21. D

22. D

**Solution (23-25)**

Arrangements obtained are:

D>E>B>A>F>C>G OR

D>E>B>A>C>F>G OR

D>E>B>A>C>G>F

23. C

24. C

25. D

**Solution (26-30)**

26. A

27. D

28. B

29. B

30. A

**Solution (31-35)**

A>B>C>D>E>F>G>H

31. D

32. A

33. A

34. E

35. B

**Solution (36-50)**

36. C

37. D

A>D>E>C>F.

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**38. B**

$S > (Q,U) > P > T > R$

**39-40.**

$B,D > A > C > E$  (we can't say anything about B and D)

**39. D**

**40. C**

**41 D.**

Total number of students in the class =  $(21+15)-1 = 35$

**42. C**

Given Karan is 17th from last  $\rightarrow$  Rohit is 7 ranks ahead of Karan. Since, the position of Karan is given from the last, Rohit rank from last is  $17 + 7 = 24 \rightarrow$  Position of Rohit from the start = Total strength of the class + 1 - Position of Rohit from the bottom =  $39 + 1 - 24 = 16^{\text{th}}$

**43. B**

Since Q is 14th from left; there is no chance for M to be left of Q.

$\rightarrow$  M's position from the left end =  $14 + 16 + 1 = 31^{\text{st}}$   $\rightarrow$  M's position from the right end = Total no of children + 1 -

M's position from the left end =  $40 + 1 - 31 = 10^{\text{th}}$

**44. C**

$11 + 11 - 1 = 21$

**45. B**

$(36-9)+1=28^{\text{th}}$  from the bottom

**46. B**

Priya's rank from bottom =  $(35 - 7) + 1 = 28 + 1 = 29$

Divya's rank from bottom =  $(35 - 12) + 1 = 23 + 1 = 24$

Hence, Priya and Divya's ranks are 29th and 24<sup>th</sup>

**47. B**

Charu  $\rightarrow$  25, 26, 27, 28

Charu's sister  $\rightarrow$  28, 29, 30

Charu's brother  $\rightarrow$  ..., 24, 26, 28, 30.

**48. D**

Total number of students in the class

$$= 16 + 12 - 1 = 27$$

**49. B**

Total students = 40

(Jalal) 12 + + + + + + 20 (Dhoni)

Dhoni's rank from bottom

$$= 40 - (12 + 8) + 1$$

$$= 21\text{st.}$$

**50. B**

According to Kailash, Deepak's birthday falls on one of the days among 21st, 22nd, 23rd, 24th, 25th, 26th, and 27th May. According to Geeta, Deepak's birthday falls on one of the days among 13th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, and 21st May. The day common to both the groups is 21st May. ∴ Deepak's birthday falls on 21st May.

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**Direction (1-5) Study the following information carefully and answer the questions given below**

There is a family of seven members Shivika, Raman, Deepika, Anuj, Vijay, Jayesh, and Priti. They all appeared in an IQ test to check their intelligence. There are three females in the family and two married couples. Priti is the most intelligent member in the family. Raman is father of Vijay and he is more intelligent than his son. Deepika has son and one daughter and she is more intelligent than her husband. The father of Raman is more intelligent than Raman. Vijay, the grandson of Jayesh, is the least intelligent in the family. Jayesh is the second most intelligent in the family. The mother of Raman is less intelligent than Raman. The grandmother of Priti has two sons and one of them is Anuj, who is more intelligent than his brother but less intelligent than his sister – in – law. Shivika is not more intelligent than her sons. The father of Priti is married to Deepika.

**1. Who among the following is wife of Raman?**

- a. Jayesh
- b. Deepika
- c. Anuj
- d. Priti
- e. None of these

**2. Who among the following is the third least intelligent in the family?**

- a. Shivika
- b. Raman
- c. Deepika
- d. Anuj
- e. None of these

**3. How is Priti related to Anuj?**

- a. Niece
- b. Nephew
- c. Son
- d. Can't be determined
- e. None of these

**4. The one who is the most intelligent is not a**

- a. Daughter
- b. Granddaughter
- c. Wife
- d. Sister

**5. How is Shivika related to Deepika?**

- a. Mother – in – law
- b. Mother
- c. Father
- d. Daughter
- e. None of these



**Direction (6-9) Study the following information carefully and answer the questions given below**

There are 7 members in a family – Prajakta, Ayush, Rakesh, Shyam, Anjali, Raveena & Ravi.

There are only 3 females in the family – Prajakta, Anjali & Raveena. The family consists of three couples, four pairs of brother and sister, 3 brothers and one pair of sisters. Raveena is not the sister of Prajakta or Ayush. Shyam is not married to either Raveena or Anjali. Raveena's husband is neither Ayush nor Shyam. Rakesh is the brother of both Ayush and Prajakta. Ayush is a brother of Ravi. Shyam is brother of Anjali. Ravi is unmarried. Anjali and Raveena are sisters.

**6. Who is Shyam's wife?**

- a. Either Prajakta or Anjali
- b. Anjali
- c. Prajakta
- d. Raveena
- e. None of these

**7. Which of the following is not a pair of brother and sister?**

- a. Prajakta & Ayush
- b. Prajakta & Rakesh
- c. Anjali & Rakesh
- d. Anjali & Shyam
- e. None of these

**8. Which of the following is a pair of husband and wife?**

- a. Rakesh & Raveena
- b. Shyam & Anjali
- c. Rakesh & Anjali
- d. Ayush & Prajakta
- e. None of these

**9. Which of the following statements is false?**

- a. Rakesh is Raveena's husband
- b. Prajakta is Raveena's sister – in – law
- c. Rakesh has the same relation with Anjali as Shyam has with Raveena
- d. Prajakta is not Shyam's sister.
- e. None of these

**Direction (10-14) Study the following information carefully and answer the questions given below**

In a family of eight persons – C, D, E, F, G, H, I & J – there are four males and four females.

There are three married couples and two persons are unmarried. Each of them reads a different newspaper, viz Wall Street Journal, Washington Journals, Financial Times, Economic Times, Business Standard, Indian Express, The Hindu & Deccan herald. No couples reads both the versions of same newspaper. In the family of two generations, each male member except J has two brothers and one sister. I is the mother – in – law of E

who reads Washington Journals. D who reads Financial Times, is the daughter – in – law of J. G who reads Business Standard is the unmarried brother of H, who does not read The Hindu. No female reads Economic Times or Indian Express. F is the brother – in – law of E but he does not read The Hindu, Deccan Herald or Indian Express. C does not read Indian Express wall street journal and the hindu. J has no son – in – law. H is D's sister – in – law and does not read wall street journal. E has no siblings.

**10. Who among the following reads Economic Times?**

- a. Can't say
- b. F
- c. C
- d. E
- e. None of these

**11. F reads which of the following magazines?**

- a. Can't say
- b. Wall Street Journal
- c. Business Standard
- d. Deccan Herald
- e. None of these

**12. Which of the following pairs of persons does not represent the couples?**

- 1 – J & I
- 2 – C & E
- 3 – F & D

- a. Can't say
- b. Only 1
- c. Only 2
- d. All of the above pairs of persons represent the couples
- e. None of these

**13. How many sons does J have?**

- a. Two
- b. Three
- c. One
- d. Can't say
- e. None of these

**14. How is C related with H?**

- a. Father
- b. Brother
- c. Husband
- d. Can't say
- e. None of these

**Direction (15-19) Study the following information carefully and answer the questions given below**

U, V, W, X, Y & Z are members of a family consisting of three generations. The family consists of two pairs of couples. The family consists of only three females. The oldest member in the family is a female but the youngest one is a male. No two persons are of the same age. One day they visited a restaurant and sat around a table facing towards the centre. X sat opposite the person who

occupies the third place when their ages are considered in descending order. U is the grandfather of Z and sat on the immediate right of X, who is the father of W but not the husband of Y. Persons of the same generation sat opposite each other. V sat on the immediate right of a female. Z is not the youngest. In each generation female is elder than male.

**15. The youngest person sat between which of the following two persons?**

- a. X and Y
- b. V and U
- c. X and V
- d. Data inadequate
- e. None of these

**16. The only person who sat between Y and Z is not the person who is**

- a. The mother of Z
- b. The daughter – in – Law of U
- c. The wife of X
- d. The second in position in descending order of age
- e. None of these

**17. Which of the following shows the correct order rightward from the position of U?**

- a. U, Z, V, Y, X, W
- b. U, X, Y, W, V, Z
- c. U, X, W, Y, V, Z
- d. None of these

e. None of these

**18. The person who are adjacent to Y, are**

- a. V and Z
- b. W and X
- c. W and V
- d. Data inadequate
- e. None of these

**19. Which of the following statements is/are not true?**

- 1 – One of the couples is U and Y
- 2 – X is the son of Y whereas V is the wife of X
- 3 – W is the brother of Z
- 4 – Y, V and Z are females.

- a. All 1, 2, 3 and 4
- b. Only 3
- c. Only 3 and 4
- d. None
- e. None of these

**Direction (20-24) Study the following information carefully and answer the questions given below**

In a family of three generations, there are two pairs of couples and two pairs of brothers and sisters. There are three Reporters, Two Lawyers, one Architect and one Doctor in the family. The name of the persons in the family are D, E, F, G, H, I & J.

- 1 – No females in the family are Reporter.
- 2 – J is not a Doctor

3 – No married persons in the family are Lawyers.

4 – Ratio of the monthly salaries of E : F : G is 1 : 3 : 5

5 – Ratio of the monthly salaries of D : H : I is 2 : 1 : 3

6 – Ratio of the monthly salaries of E : D : J is 1 : 4 : 7

7 – D is the son of E.

H is the son of F and his wife is E. F is a Reporter. F & J are the eldest couple in the Family. G is the daughter of H. I is the sister – in – law of E, who has no siblings.

**20. How is E related to J?**

- a. Mother – in – Law
- b. Daughter – in – Law
- c. Daughter
- d. Can't say
- e. None of these

**21. Who among the following persons is not a Reporter?**

- a. D
- b. F
- c. H
- d. I
- e. None of these

**22. Who among the following gets the maximum monthly salary?**

- a. D
- b. F
- c. H
- d. J

e. None of these

**23. How J is related to G?**

- a) Grandfather
- b) Grandmother
- c) Grandson
- d) Granddaughter
- e. None of these

**24. Which pair given below are the children of E?**

- a. E & F
- b. E & C
- c. D & G
- d. E & D
- e. None of these

**Direction (25-27) Study the following information carefully and answer the questions given below**

A, B, C, D, E, F & G are seven members of a family. Each of them has a different profession –

Businessman, Teacher, Advocate, Engineer, Architect, Chartered Accountant & Banker – and their incomes are different. There are two married couples in a group. C is the Businessman and earns more than the Engineer and the Advocate. E is married to Chartered Accountant and she earns the least. No lady is either Advocate or Engineer. B, the Teacher, earns less than A, the Banker. G is married to B and he earns more than D & A. F is not

Advocate. The Chartered Accountant earns less than the Advocate but more than the Banker.

**25. Who earns the maximum in the family?**

- a. F
- b. G
- c. C
- d. D
- e. None of these

**26. Which of the following is a pair of married couple?**

- a. CE
- b. FE
- c. BE
- d. CD
- e. None of these

**27. At least how many male members are there in the family?**

- a. Two
- b. four
- c. Three
- d. Five
- e. None of these

**Directions (28-32): Read the following information carefully and answer the questions given below.**

In a group of 5 persons A, B, C, D and E. B and C are intelligent in Mathematics and Geography. A and C are

intelligent in Mathematics and History. B and D are intelligent in Political Science and Geography. D and E are intelligent in Political Science and Biology. E is intelligent in Biology, History and Political Science. B is intelligent in mathematics and C is intelligent in geography.

**28. Who is intelligent in Political Science, Geography and Biology?**

- a. E
- b. D
- c. C
- d. B
- e. A

**29. Who is intelligent in Mathematics, Political Science and Geography?**

- a. A
- b. B
- c. C
- d. D
- e. E

**30. Who is intelligent in Mathematics and History but not in Geography?**

- a. C
- b. E
- c. A
- d. B
- e. D

**31. Who is intelligent in Mathematics, Geography and History?**

- a. E
- b. A
- c. D
- d. C
- e. B

**32. Who is intelligent in Political Science, History and Biology?**

- a. A
- b. B
- c. C
- d. D
- e. E

**33. If 482 is written as CDA, 307 is written as BAC, 916 is written as ABB, then 253 is written as?**

- a) BBA
- b) AAB
- c) DAC
- d) AAA
- e) CBD

**Directions (34-37): Read the following information carefully and answer the questions given below.**

There are six wallets A, B, C, P, Q and R, each containing different amount of money in it. Wallet B has more money than wallet Q but less than wallet P. Only

wallet R has more money than wallet C. Wallet Q does not has the least amount of money. The wallet containing 3rd highest amount of money has Rs. 3000, which is Rs.1000 more than the wallet which has 2nd lowest amount of money.

**34. Which of the following wallet has the least amount of money?**

- a. A
- b. B
- c. C
- d. Q
- e. P

**35. What may be the amount of money in wallet C?**

- a.Rs. 2500
- b.Rs. 2000
- c.Rs. 3500
- d.Rs. 2250
- e.Rs. 2100

**36.What may be the amount of money in wallet B, if it has Rs. 250 less than the wallet P?**

- a.Rs. 2500
- b.Rs. 2750
- c.Rs. 3500
- d.Rs. 3250
- e.Rs. 2200

**37. Which of the following is true regarding wallet P?**

- a. Only wallet A has less money than wallet P

- b. Wallet B has more money than wallet P
- c. Wallet P has 3rd highest amount of money
- d. Wallet Q has more amount of money than P
- e. none of these

**Directions (38-39): Read the following information carefully and answer the questions given below.**

Eight letters D, L, E, I, U, A, G and O are arranged to form a meaningful word. More than one meaningful word can be formed. Two letters are placed between O and I. D is placed next to I. Only one letter is placed between A and D. D is placed at one of the ends. Four letters are placed between A and E. U is placed next to G. G is not placed next to E.

**38. Which of the following is third letter from the left?**

- a) A
- b) G
- c) Cannot be determined
- d) E
- e) None of these

**39. If U is placed 2<sup>nd</sup> from right end, then which of the following letter is second to the left of L?**

- a) D
- b) U
- c) G
- d) I

- e) None of these

**40. In a row of boys, Jeevan is 7<sup>th</sup> from the left end and 11<sup>th</sup> from the right end. In another row of boys, Vikas is 10<sup>th</sup> from the left end and 12<sup>th</sup> from the right end. How many boys are there in both the rows together?**

- a. 38
- b. 40
- c. 32
- d. Cannot be determined
- e. None of these

**Directions (41-45): Read the following information carefully to answer the questions that follow.**

- I. Anita, Mahima, Rajan, Lata and Deepti are five cousins.
- II. Anita is twice as old as Mahima.
- III. Rajan is half the age of Mahima.
- IV. Anita is half the age of Deepti
- V. Rajan is twice the age of Lata

**41. Who is the youngest?**

- a. Deepti
- b. Rajan
- c. Lata
- d. Anita
- e. None of these

**42. Who is the eldest?**

- a. Deepti

- b.Lata
- c. Anita
- d.Rajan
- e. None of these

**43. Which of the following pairs of persons are of the same age?**

- a.Mahima and Lata
- b. Anita and Mahima
- c.Mahima and Rajan
- d. There is no person
- e. Cannot be determined

**44. Anita is younger than whom?**

- a.Rajan
- b.Mahima
- c.Deepti
- d.Lata
- e. None of these

**45. If Mahima is 16 yr old, then what is the age of Lata?**

- a. 4yr
- b. 5yr
- c. 7yr
- d. 14yr
- e. None of these

**46. In a row of girls, Damini and Karishma occupy the tenth place from the right end and eleventh place from the left end, respectively. If they interchange**

**their places, then Damini and Karishma occupy eighteenth place from the right and nineteenth place from the left respectively. How many girls are there in the row?**

- a. 25
- b. 30
- c. 28
- d. 20
- e. None of these

**47. In a queue, Roshan is 14th from the front and Jeelani is 17th from the end, while Aysha is in between them. If Roshan is ahead of Jeelani and there are 48 persons in the queue. How many persons are there between Roshan and Aysha?**

- a. 8
- b. 7
- c. 6
- d. 7
- e. None of these

**48. Three persons A, B and C are standing in a queue. There are 5 people between A and B and 8 people between B and C. If there are three people ahead of C and 21 people behind A, then how many persons are standing in a queue?**

- a. 27
- b. 28
- c.40



- d. 41
- e. none of these
49. A is 27th from the right end and B is 22nd from the left end of a row. If they interchange their positions, then A becomes 22nd from the left end. If all are facing same direction then how many persons are sitting in the row?
- a. 48
- b. 50
- c. 49
- d. Cannot be determined
- e. None of these

50. Adarsh is eleventh from the left end and Naveen is 20th from the right end in a row. If they interchange their positions, Adarsh becomes fifteenth from the left end. How many persons are there in the row?

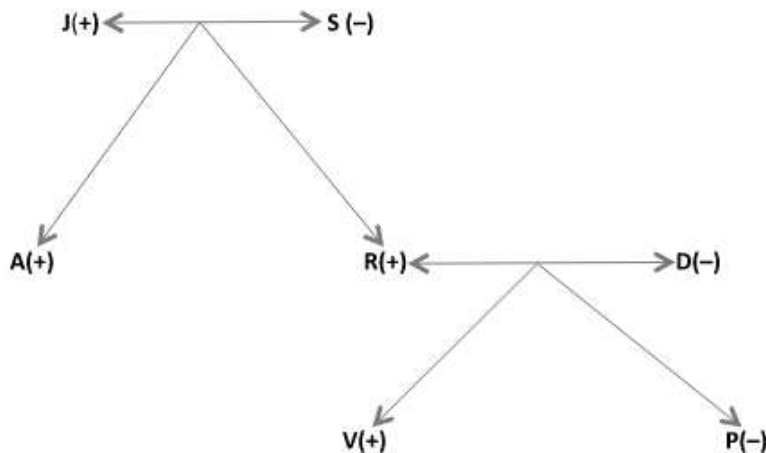
- a. 36
- b. 35
- c. 33
- d. 34
- e. None of these

Answer Key with Explanation

**Solution (1-5)**

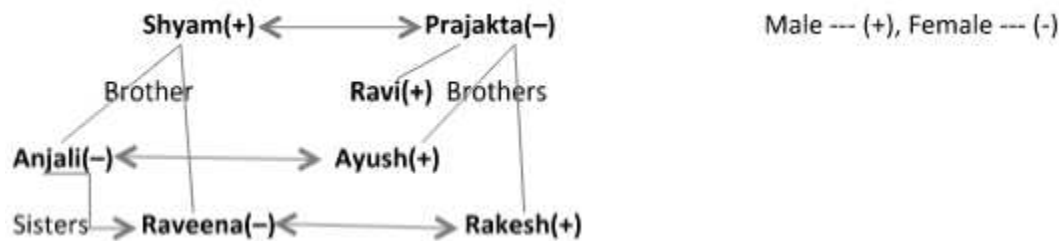
Priti(P) > Jayesh(J) > Deepika(D) > Anuj(A) > Raman(R) > Shivika(S) > Vijay(V)

Male represented by '+' Female represented by '-'



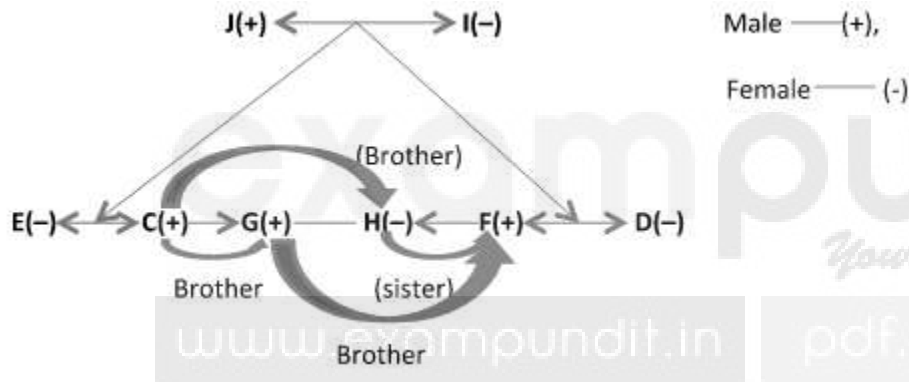
1. B 2. B 3. A 4. C 5. A

**Solution (6-9)**



**6. C 7. C 8. A 9. C**

**Solution (10-14)**

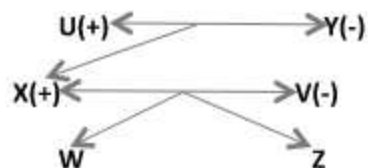


Hence the table of who reads which newspaper is given below with positive(+) and negative(-) sign showing male and female members of the family.

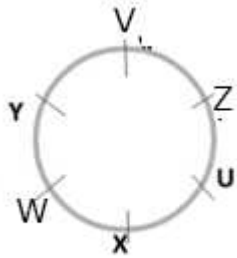
**10. C 11. B 12. D 13. B 14. B**

**Solution (15-19)**

From the given information we can make our task easy. First we find that if U is the grandfather of Z, it means Z is a person of the lowest generation. Again, since persons of same generation sat opposite each other, X, who sat adjacent to U, is not from the generation of U. But X is the father of X. This implies X is from the middle generation and W from the lowest generation. Again, since X is not the husband of Y, U is the husband of Y and X is the husband of V. Thus, we get the following tree.



As per the information it is given that there are three females in the family. This implies that either W or Z is a female. Now, let us fix their seating arrangement. From the given information we can also conclude that U sat on the immediate right of X. Again, since V and X are of the same generation, this implies that V sat opposite each other. Thus, we get the following arrangement.



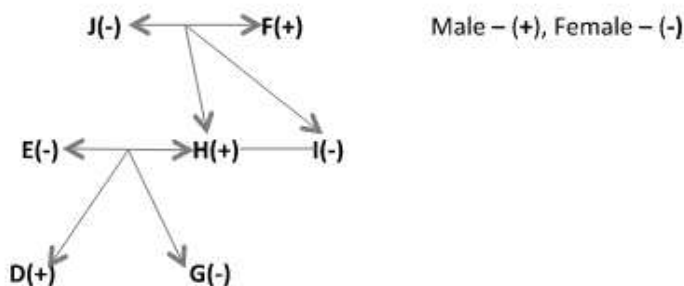
Again, from the given information we get that Z is not that youngest. This implies W is the youngest(because only W and Z are from lowest generation). Now, we also find out from the given information that the youngest one is male. This implies that W is a male and Z is a female. Now, let us arrange the persons in descending order of their ages. Since the oldest member is a female, this implies Y is older than U. Again, we get that V occupies the third position. This implies v is older than X. And, since W is the youngest. Hence Z is older than W.

**Y > U > V > X > Z > W**

Thus, we can conclude that V sat on the immediate right of Z(because it is given that V sat on the immediate right of a female) and W sat on the immediate left of X.

**15. A 16. D 17. C 18. C 19. D**

**Solution (20-24)**



**20. B 21. D 22. D 23. B 24. C**

**Solution (25-27)**

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The two married couples are 1) G(+) B(-) and 2) E and F or D( not sure as per the info given). The table below shows the profession and specifies the male and female members of the family.

	Person						
Profession	A	B	C	D	E	F	G
Bizz	x	x	✓	x	x	x	x
Teacher(-)	x	✓	x	x	x	x	x
Adv(+)	x	x	—	x	x	x	—
Eng(+)	x	x	x	—	x	—	—
Arch(-)	x	x	x	x	✓	x	x
CA(+)	x	x	x	—	x	—	x
Banker	✓	x	x	x	x	x	x

25. C 26. E 27. B

Solution(28-32)

	Maths	Geography	History	Political Science	Biology
A	✓	✗	✓	✗	✗
B	✓	✓	✗	✓	✗
C	✓	✓	✓	✗	✗
D	✗	✓	✗	✓	✓

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**Solution(28-32)**

**28. B 29. B 30. C 31. D 32. E 33. D**

Place value A-1, B-2, C-3 and D-4

CDA=3+4+1=8 (even)->8\*2-2=14->4+8+2 (Sum of given number)

BAC=2+1+3=6 (even)->6\*2-2=10->3+0+7 (Sum of given number)

ABB=1+2+2=5 (Odd)->5\*3+1=16->9+1+6 (Sum of given number)

AAA=1+1+1=3 (Odd)->3\*3+1=10->2+5+3 (Sum of given number)

**Solution(34-37)**

$R > C > P$  (Rs. 3000)  $> B > Q$  (Rs.2000)  $> A$

**34. A 35. C 36. B 37. C** [exampundit.in](http://exampundit.in)

[pdf.exampundit.in](http://pdf.exampundit.in)

**Solutions (38-39)**

D I A L O G U E

E U G O L A I D

**38. C 39. D 40. A**

Total number of boys = (Number of boys in Jeevan's row) + (Number of boys in Vikas's row)

= (6 + 1 + 10) + (9 + 1 + 11) = (17 + 21) = 38

**Solution (41-45):**

Let age of Mahima = x

Then age of Anita = 2x

Age of Rajan =  $x / 2$

Age of Deepti =  $4x$

Age of Lata =  $x / 4$

Now, we have the following arrangement in descending order

Deepti > Anita > Mahima > Rajan > Lata

**41. C 42. A 43. D 44. C 45. A 46. C 47. A**

The number of people between Roshan and Jeelani =  $48 - (14 + 17) = 17$  person → Now, Aysha is exactly between Roshan and Jeelani. → Therefore, there are 8 persons between Roshan and Aysha.

**48. C 49. D**

Since we don't get the position of any of the person from both the ends before or after interchanging then it is not possible to answer how many persons are there in the row.

**50. D**

As Adarsh position from the left end is 11.

And Naveen position from right end is 20 and after interchanging their position will be interchanged i.e now Naveen is 11 from left end and Adarsh is 20 from right end and it is given that after interchange Adarsh is 15th from left end, so total persons =  $(\text{left} + \text{right}) - 1 = 15 + 20 - 1 = 34$ .