Directions (1-5): Rahul goes to gym and runs 40 minutes on treadmill. For starting 15 minutes he runs at a uniform speed of 5 km/hr and after that he runs at a uniform speed of 9 km/hr for remaining time. He runs total (A) km on treadmill. After that he comes to his house and get ready for office which is 45 km away from his house. He reaches office in 1.5 hours at 9:30 a.m. In office he gives some work to his subordinates P₁ and P₂ at (B). P₁ can complete that work in 6 hours while efficiency of P₁ and P₂ is in the ratio 5 : 4. P₁ and P₂ together completes 75% of that work at 12:30 p.m. Rahul and P₂ together can complete same work in 3 hours. Rahul is (C)% more efficient than P₁. After that work he comes back to home in upstream (Speed of stream is 3 km/hr and his speed in still water and distance between his house and office are same as earlier). He takes (D) hours to reach home. When he reaches home, two of his friends Aman and Raman come at his house. All three starts to play a game in which 2 dices are used by each person. (E) is the number of outcomes in which first Rahul and then Aman throw their respective dices. In a game, all three throw their dices and each one of them get 8 as the sum of numbers in their dices and any one of two not get same outcomes. Winner is the one who gets highest number as the sum of the square of the number comes in dices. (F) should be the outcomes of the dices of Raman if Raman is winner of the game.

Q1. What value will come at the place of ‘A’?
(a) 4.25 km
(b) 3.75 km
(c) 5 km
(d) 5.25 km
(e) None of the given options

Q2. What value will come at the place of ‘B’?
(a) 10:45 a.m.
(b) None of the given options
(c) 11 a.m.
(d) 10:30 a.m.
(e) 10 a.m.

Q3. What value will come at the place of ‘C’?
(a) 16 \(\frac{2}{3}\)%
(b) 20%
(c) 25%
(d) 33\(\frac{1}{3}\)%
(e) 50%
Q4. What value will come at the place of ‘D’?
(a) 2 hours
(b) 1.5 hours
(c) 1\(\frac{7}{8}\) hours
(d) 1\(\frac{2}{3}\) hours
(e) 1\(\frac{4}{11}\) hours

Q5. What value will come at the place of ‘E’?
(a) 72
(b) 42
(c) 36
(d) 108
(e) 54

Q6. What value will come at the place of ‘F’?
(a) None of the given options
(b) Cannot be determined
(c) 3 and 5
(d) 4 and 4
(e) 2 and 6

Q7. If length of a rectangle is decreased by 6 cm we get a square and the area of square formed is 252 cm\(^2\) less than the area of square formed when breadth of the original rectangle is increased by 6 cm. Find the perimeter of the rectangle.
(a) 42 cm
(b) 88 cm
(c) 80 cm
(d) 84 cm
(e) 72 cm

Q8. Breadth of a rectangle is equal to the diagonal of the square whose side is 2.5\(\sqrt{2}\) cm. Ratio between length and breadth of rectangle is 3 : 1. Find the area of the rectangle (in cm\(^2\)).
(a) 125
(b) 75
(c) 90
(d) 100
(e) 115
Q9. Equal distance is covered by a boat in upstream and in downstream in total 5 hours. Sum of speed of a boat in upstream and downstream is 40 km/hr. Speed of boat in still water is 600% more than the speed of stream. Find the approximate distance covered by boat in downstream (in km).
(a) 40
(b) 35
(c) 55
(d) 59
(e) 50

Q10. A and B entered into a partnership with Rs.800 and Rs.1600 respectively. From 9th months onward they each decided to invest Rs.100 more on starting of each month. If total annual profit is Rs.7700 then find the profit share of A.
(a) Rs.2650
(b) Rs.3250
(c) Rs.4250
(d) Rs.2350
(e) Rs.1650

Q11. A starts a business, after 6 months B also join him with Rs.4500 and after 2 months of B’s joining C also join them with Rs.4500. If A get approx. Rs 4900 out of total annual profit of Rs.10,000 then find the approximate value of initial investment of A.
(a) Rs.4800
(b) Rs.4200
(c) Rs.3600
(d) Rs.4400
(e) Rs.5200

Directions (12-16): - Bar chart given below shows selling price of five articles and profit % earned on selling these articles by Ravi. Study the data carefully & answer the following questions.

![Bar chart showing selling price and profit % for five articles A, B, C, D, E.]

Selling Price

Profit %
Q12. Ravi sold article ‘D’ to Shyam who again sold it at 25% profit. Find the difference between profit earned by Ravi to profit earned by Shyam.
(a) Rs. 5
(b) Rs. 10
(c) Rs. 15
(d) Rs. 20
(e) Rs. 25

Q13. Cost price of article ‘A’ is what percent more/less then cost price of article ‘C’.
(a) 62.5%
(b) 37.5%
(c) 25%
(d) 75%
(e) 50%

Q14. Ravi marked article B, 50% above its cost price, then what percent discount should be given on marked price to earn the given profit?
(a) 40%
(b) 30%
(c) 25%
(d) 20%
(e) 10%

Q15. Profit earned on selling article ‘E’ is how much more/less than profit earned on selling article ‘C’.
(a) Rs.40
(b) None of the given options
(c) Rs.30
(d) Rs.20
(e) Rs.10

Q16. Ravi mark-up article ‘A’ such that on selling article ‘A’ at 16% discount he will earn the given profit. Mark up price of article ‘A’ is what percent more than its cost price?
(a) $33\frac{1}{3}\%$
(b) $66\frac{2}{3}\%$
(c) $16\frac{2}{3}\%$
(d) $26\frac{2}{3}\%$
(e) $73\frac{1}{3}\%$
Direction (17-20): Two quantities that is I and II are given in following questions. Students is expected to solve the quantities and answer them according to given options by comparing their numerical values.

Q17. $3^{x+5} \cdot 9^{2x-4} = 9^{5x-14}$
And, $2y^2 - 15y - 28 = 3y^2 - 23y - 13$
Quantity I: Value of ‘x’
Quantity II: Value of ‘y’
(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

Q18. Quantity I: When an article sold at 28% discount then profit earned is 29.6%. ‘x’ is the profit % when article sold at 30% discount.
Quantity II: 38
(a) Quantity I = Quantity II or No relation
(b) Quantity I < Quantity II
(c) Quantity I ≤ Quantity II
(d) Quantity I ≥ Quantity II
(e) Quantity I > Quantity II

Q19. 12 men can complete a work in 10 days. 18 women can do the same work in 20 days. 27 children can do that work in 20 days. 9 women and 9 children together do that work for 16 days.
Quantity I: No. of men required to complete the remaining work in one day
Quantity II: 36
(a) Quantity I > Quantity II
(b) Quantity I ≤ Quantity II
(c) Quantity I = Quantity II or No relation
(d) Quantity I < Quantity II
(e) Quantity I ≥ Quantity II

Q20. Quantity I: Time taken to fill the tank when A, B and C are opened in every alternate minute starting with A and ending with C. A, B and C alone takes 20 minutes, 15 minutes and 12 minutes respectively to fill the tank.
Quantity II: Find the time taken by waste pipe to empty the full cistern. Two pipes alone can fill a cistern in 10 minutes and 15 minutes respectively. When these two pipes along with the waste pipe are opened, the cistern gets filled in 18 minutes.
Directions (21-25): - Data given below shows number of units of electricity consumed by Fans, Lights and Other appliances in three different houses. Study the data carefully and answer the following questions.

House A → Total number of units consumed in House ‘A’ is 250 units out of which 120 units are consumed by Other appliances. Units consumed by Fans is 30 less than Units consumed by Lights.

House B → Units consumed by Lights in House ‘A’ and House ‘B’ is same. Units consumed by Fans in House ‘B’ are 60% more than that of fans in House ‘A’.

House C → Total units consumed by Lights in all three houses is 200 units and units consumed by Fans and Lights is same in House C. Units consumed by Other appliances is 125% more than that by Fans in this House. Total units consumed by Other appliances in all three houses is 320 units.

Q21. Number of units consumed by Lights in House ‘B’ is what percent more of the units consumed by Lights in house ‘C’?
(a) 100%
(b) 200%
(c) 120%
(d) 50%
(e) 150%

Q22. Average number of units consumed by Other appliances in House ‘B’, ‘C’ and ‘D’ is 110 units. Find the units consumed by Other appliances in House ‘D’?
(a) 110 units
(b) None of the given options
(c) 130 units
(d) 120 units
(e) 140 units

Q23. Find total number of units consumed in House ‘A’ and ‘C’ together?
(a) None of the given options
(b) 410 units
(c) 430 units
(d) 400 units
(e) 420 units
Q24. Find the difference between Units consumed by Other appliances in House ‘B’ and house ‘C’?
(a) 10 units  
(b) 20 units  
(c) 30 units  
(d) None of the given options  
(e) 40 units

Q25. Total units consumed by Fans and Lights together in House ‘C’ is what percent less than total units consumed by Lights and Other appliances together in House ‘A’?
(a) 20%  
(b) 40%  
(c) 50%  
(d) 60%  
(e) 80%