

Statement Test 3

1. A man has got by selling his ancestral property. He divides the money in the ratio 2:2:1. He lends the 1st part to his friend at 10% SI while he invested the 2nd part in the share market where he got some yearly returns which are Rs 'X' more than the return he got from lending to his friend. He invested the remaining amount in a bond where he got% annual return which is Rs 4000 more than X. Total annual return for the man is Rs 2,04,000. Return from the bond is 24% of the return he got from the share market.

1.Rs 1225000, 4% 2.Rs 2000000, 6% 3.Rs 1500000, 10% 4.Rs 200000, 6% 5.None of these

2. An alloy of copper and zinc contains% copper by weight. 'X' kg of zinc is added to the mixture which makes zinc 33 1/3% by weight. If 'X' Kg of copper would have been added instead, the percentage of Cu by weight would be 83 1/3%. If 3X Kgs zinc would have been added, the percentage of zinc will become The ratio of the weight of the original mixture to X is 5:1.

1.80%, 50% 2.50%, 80% 3.75%, 60% 4.60%, 75% 5.None of these

3.A group of workers can complete a certain job in 9 days. But it so happens that every alternate day starting from the second day, 2 workers are withdrawn from the job and every alternate day starting from the third day, one worker is added to the group. In such a way, the job is finished by the time there is no worker left. If it takes the double time to finish the job now, find the number of workers who started the job? A. 5 B. 10 C. 15 D. 20 E. None

4. In Delhi there are 80 people. The number of people who likes dogs are twice the number of people who like cats. The number of people who don't like dogs are 32 and the number of people who don't like cats are 56. The number of people who like both dogs and cats are twice the number of those who like only cats. What is the number of people who neither like dogs nor cats?

A. 29 B. 22 C. 24 D.19 E. 25

5. A can do a piece of work in 12 days, B can do the same work in 18 days. They worked for 6 days and C does the rest of work in 4 days. If they get Rs. 1650 for the whole work, find the individual share of A,B and C respectively?

A. 825, 550, 275 B. 550, 825, 275 C. 825, 275, 550 D. 850, 525, 225 E. None

6. A man X is driving to work. In order to reach office for meeting he drives faster and the speed is increased by 5km/h and he reached office 30 minutes early. Assuming that due to traffic his speed is decreased by 3 km/h he will be late for the meeting by 30 minutes. Calculate the Speed and the distance to the office?

A. 15km/h and 30km B. 18km/h and 30km C. 15km/h and 87km D. 17km/h and 88km E. None

7. A maid borrowed money from 2 houses (X and Y) she works in. From X she borrowed money at an interest rate of 15% and from Y at the rate of 18%. The total money she borrowed was Rs. 24000. She paid Rs. 4050 as an interest in addition to the amount borrowed after 1 year. Find how much money she borrowed at 18% interest rate?

A. 12000 B. 13800 C. 15000 D. 20000 E. 25000

8. A business man invested in 2 types of Simple interest bearing securities (S1 and S2). He invested in S1 at the rate of 6% p.a and 7% p.a. for the S2. After 2 years, he earned Rs. 354. One fourth of the amount invested in S1 is equal to the one-fifth of the amount invested in S2.

Calculate the total money the man invested in the securities?

A. 2500 B. 2700 C. 3500 D. 3400 E. 3000

9. Akram Ali left an amount of Rs 340000 to be divided between his two sons aged 10 years and 12 years such that both of them would get an equal amount when each attain 18 years age. What is the share of elder brother if the whole amount was invested at 10% simple interest?

A. 120000 B. 140000 C. 160000 D. 180000 E. None

10. A man rows to a certain place(downstream) and comes back(upstream), but by mistake he covers 1/3rd more distance while coming back. The total time for this journey is 10 hours. The ratio of speed of boat to that of stream is 2: 1. If the difference between upstream and downstream speed is 12km/hr, then how much time will the man take to reach to starting point from his present position? A. 35 minutes B. 45 minutes C. 60 minutes D. 40 minutes E. None of these

11. Water flows out at the rate of 20 m/min from a cylindrical pipe of radius 5 mm. Find the time taken to fill a conical tank whose diameter at the surface is 40 cm and depth 24 cm.

A. 14 min. B. 12.8 min. C. 10.2 min. D. 15 min. E. None of these

12. It takes 30 minutes to empty a half-full tank by draining it at a constant rate. It is decided to simultaneously pump water into the half-full tank while draining it. What is the rate at which water has to be pumped in so that it gets fully filled in 10 minutes? A. 4 times the draining rate B. 3

times the draining rate C. 2.5 times the draining rate D. 2 times the draining rate E. None of these

13. A boat can cover a distance of 75 Km downstream and 99 Km upstream in 'r' hours. When it rains the speed of stream is increased by 50% and due to low visibility the speed of boat is decreased by 25%. Now, it takes 6 hours to cover 54 Km downstream and 36 Km upstream. If the time taken by boat to cover 81 Km in still water while raining is 4 hours 30 minutes, then find the value of 'r'. A. 6 B. 7 C. 9 D. 8 E. None of these

14. An inlet pipe P can fill a water tank in 12 hours less than that the time taken by other inlet pipe Q. The pipes P and Q together can fill the water tank in 280/17 hours. If pipe P can fill the water tank together with an outlet pipe R in 40 hours, then Pipe Q can fill the water tank together with the outlet pipe R in how many hours?

A. 75 hours B. 70 hours C. 60 hours D. 80 hours E. None of these

15. A small slice from a circular shaped pizza of diameter 21 cm and thickness 4 cm was cut. If the small slice makes an angle of 30 degree at the centre of the pizza then what was the total volume (in cm³) of the remaining part of the pizza?

A. 1460.5 B. 1270.5 C. 1320.50 D. 1120 E. None of these

16. Three taps T1, T2 and T3 can fill one tank in 12, 20 and 24 hours respectively. If in the first hour T1 is opened, then in the next hour T2 and T3 are opened and same pattern continues then in how much time the tank will get full?

A. 12 hours B. 11 hours 48 mins. C. 13 hours D. 11 hours 27.27 mins. E. 12 hours 48 mins.

17. A man purchased 5 T-shirts from a garment shop at Rs. 450 each. When he reached home, he found that two T-shirts were defective. One of the T-shirt is having a small hole and other have colour misprint. He goes for the return of the 2 pieces, but the shopkeeper gives him discount of 5% and 10% on those T-shirts and the man agrees with the same. How much money is refunded by the shopkeeper? A. Rs. 70 B. Rs. 67.5 C. Rs. 75 D. Rs. 76.5 E. Rs. 78

18. The distance between two stations New Delhi and Howrah is 1800 km. From a station Gaya which is between New Delhi and Howrah, two cars x and y started simultaneously with speeds 84 kmph and 88 kmph towards New Delhi and Howrah respectively. After reaching their respective destinations, they reverse their direction and continue travelling. After x crosses Gaya and travels an additional 5 km, it crosses y. What is the distance between New Delhi and Gaya?

A. 922.22 km B. 876.6 km C. 1600 km D. 4520 km E. Data insufficient

19. Aman goes to a shop to purchase a tube light, CFL and an LED bulb. The cost price of an LED bulb is 60% of the total cost price of tube light and CFL. The shopkeeper sells the tube light at a 5% profit, CFL at 25% profit and LED at 25% loss and the total bill is Rs7700. Had the tube light been sold at 20% loss, CFL at 10% profit and LED bulb at 16.66% profit aman would have paid Rs100 more. What is the total cost price of all three together?

A. Rs. 9800 B. Rs. 8000 C. Rs. 8500 D. Rs. 9200 E. None of these

20. Sanjay buys two second hand cars for Rs. 1 lakh and Rs. 150000 respectively. He spends Rs. (x + 5000) on the first car and Rs. x on the second car for repairing them. He marks up the first car by 20% and second car by 30% and sells the two cars to Romy at a discount of 25% each. Now Romy sells both of them for total of Rs. 360000 at a profit of 20%. Find the amount spent by Sanjay on repairing of both the cars. A. Rs. 62500 B. Rs. 63400 C. Rs. 65200 D. Rs. 68200 E. Rs. 70000

21. There are four members in a family, A, B, C, and D, and the present average age of the family is 25 years. The age of A, B, and C are respectively 34 years younger than D, 32 years younger than D, and 2 years younger than D. After 't' years, a new baby is born in the family, and the average age of the family becomes 25.6 years. Find the ratio of C's age (t - 3) years ago to D's age after (t - 1) years? 1.9: 10 2.4: 5 3.3: 4 4.12: 13 5.2: 3

22. The difference between compound interest and simple interest on ₹24500 at R% rate after 2 years is ₹352.8, and the difference between compound interest and simple interest on ₹(X - Y) at (R + 4)% rate after 2 years is ₹396.8. I: If the sum of X and Y is 24500, then Y is ___% of X. II: The simple interest received on ₹(24500 + X - Y) at 8% rate after 2 years is ₹___. III: The value of R is ____.

Find the values that will be filled in the blanks given in I, II and III?
1.18, 4800, 12 2.22.5, 6400, 12 3.36, 3600, 12 4.4.5, 7200, 12 5.90, 6000, 12

23. There is a hollow cylinder, whose radius is 21 cm, and there is the solid cylinder, whose radius is 14 cm. The ratio of the height of the hollow cylinder to that of the solid cylinder is 4: 3. When the solid cylinder is put inside the hollow cylinder, then 36960 cm³ volume of the hollow cylinder remains empty. When the solid cylinder is melted down and some cuboids (each of dimensions 20cm * 12cm * 7cm) are formed, find the number of cuboids formed?

1.11 2.4 3.9 4.16 5.7

1. Answer: B

Let the man get Rs A by selling his ancestral property.

$$1^{\text{st}} \text{ part} = \frac{2}{5} * A = 0.4A$$

He lends the 1st part to his friend at 10% SI.

$$\Rightarrow \text{Return from } 1^{\text{st}} \text{ part} = \frac{10}{100} * 0.4A = 0.04A$$

$$2^{\text{nd}} \text{ part} = 0.4A$$

2nd part yields yearly returns which is Rs 'X' more than the return he got from lending to his friend

$$\Rightarrow \text{Return from } 2^{\text{nd}} \text{ part} = 0.04A + X$$

$$3^{\text{rd}} \text{ part} = 0.2A$$

He invested the remaining amount in a bond where he got an annual return which is Rs 4000 more than X

$$\Rightarrow \text{Return from } 3^{\text{rd}} \text{ part} = X + 4000$$

Return from bond is 24% of the return he got from the share market.

$$\Rightarrow X + 4000 = 0.24(0.04A + X)$$

$$\Rightarrow X + 4000 = 0.0096A + 0.24X$$

$$\Rightarrow 0.76X = 0.0096A - 4000$$

$$\Rightarrow 0.0096A = 0.76X + 4000$$

Also, total annual return for the man is Rs 2,04,000

$$\Rightarrow 0.04A + 0.04A + X + X + 4000 = 204000$$

$$\Rightarrow 0.08A = 200000 - 2X$$

Multiplying both sides by 0.12, we get

$$0.0096A = 24000 - 0.24X$$

$$\Rightarrow 0.76X + 4000 = 24000 - 0.24X$$

$$\Rightarrow X = \text{Rs } 20000$$

$$0.08A = 200000 - 2 * 20000 = 160000$$

$$\Rightarrow A = \text{Rs } 200000$$

Investment in 3rd part = $\frac{1}{5} * 200000 = \text{Rs } 40000$

Return from 3rd part = $20000 + 4000 = 24000$

$$\Rightarrow \% \text{ return} = \frac{24000}{400000} = 6\%$$

2. Answer: A

Let the weight of copper and zinc be 'a' and 'b' respectively.

X' kg of zinc is added to the mixture which makes zinc 33 1/3% by weight

$$\Rightarrow \frac{(b+X)}{(a+b+X)} = \frac{1}{3}$$

$$\Rightarrow 3b + 3X = a + b + X$$

$$\Rightarrow 2b = a - 2X$$

$$\Rightarrow a = 2b + 2X \text{ -----(1)}$$

Again, if X Kg of copper would have been added instead, the percentage of Cu by weight would be 83 1/3%.

$$\Rightarrow \frac{(a+X)}{(a+b+X)} = \frac{5}{6}$$

$$\Rightarrow 6a + 6X = 5a + 5b + 5X$$

$$\Rightarrow a = 5b - X \text{ -----(2)}$$

Ratio of weight of original mixture and X is 5:1

$$\Rightarrow \frac{(a+b)}{X} = 5$$

$$\Rightarrow a + b = 5X$$

$$\Rightarrow a = 5X - b \text{ -----(3)}$$

Using (2) and (3), we get

$$5b - X = 5X - b$$

$$\Rightarrow 6b = 6X$$

$$\Rightarrow b = X$$

From (1) and (2), we get

$$2b + 2X = 5b - X$$

$$\Rightarrow 3b = 3X$$

$$\Rightarrow b = X$$

From (3), we get

$$a = 5b - b = 4b$$

$$\Rightarrow a = 4b$$

If 3X Kgs zinc would have been added,

Percentage of zinc =

$$\frac{(b+3X)}{(a+b+3X)} * 100\% = \frac{(b+3b)}{(4b+b+3b)} * 100 = \frac{4b}{8b} * 100\% =$$

$$50\%$$

Also, initial weight of copper by $\% = \frac{a}{(a+b)} * 100\% = \frac{4b}{5b} * 100 = 80\%$

3.

Let No. of workers = x

Total work = 9x

ATQ, Number of men working each day is

x, x - 2, x - 1, x - 3, x - 2, till 18 days

On arranging

$$(9x - 36) + (9x - 54) = 9x$$

$$\text{Or, } x = 10$$

4.

Let w be the number of people who like only dogs

X be those who like both dogs and cats

Y be those who like only cats

Z be those who neither like dogs nor cats.

So, w + x + y + z = 80

Now, w + x = 2 * (x + y)

Hence, w - x = 2y

It is given,

$$y + z = 32 \text{ and } w + z = 56$$

We know, x = 2y

So, we get w = 2x

Similarly, we also get w + x = 48 (since y + z = 32)

Hence, Putting w = 2x in the above we get,

$$X = 16, W = 32, Y = 8 \text{ and } Z = 24$$

5.

Work done by A in 6 days = $\frac{6}{12} = \frac{1}{2}$

Work done by B in 6 days = $\frac{6}{18} = \frac{1}{3}$

Remaining work = $1 - (\frac{1}{2} + \frac{1}{3}) = \frac{1}{6}$

This work is done by C in 4 days i.e. C can complete the whole work in 24 days.

So, Ratio of work = $\frac{6}{12} : \frac{6}{18} : \frac{4}{24}$

$$= \frac{1}{2} : \frac{1}{3} : \frac{1}{6} = 3 : 2 : 1$$

Share of A = $(\frac{3}{6} * 1650) = \text{Rs. } 825$

Share of B = $(\frac{2}{6} * 1650) = \text{Rs. } 550$

Share of C = $(\frac{1}{6} * 1650) = \text{Rs. } 275$

6.

Let the distance be = x

Speed be = y

Time be = z

So according to question =

$$x/y - x/(y+5) = x/(y-3) - x/y$$

$$1/y - 1/(y+5) = 1/(y-3) - 1/y$$

$$(y+5-y)/[y(y+5)] = (y - y+3)/[(y-3)y]$$

$$5/[y+5] = 3/[y-3]$$

$$2y = 30$$

$$Y = 15 \text{ km/h}$$

Putting the value in the equation -

$$(y+5)*(z-30/60) = (y-3)*(z+30/60)$$

$$(y+5)*(2z-1) = (y-3)*(2z+1)$$

$$20*(2z-1) = 12*(2z+1)$$

$$10z-5=6z+3$$

$$4z=8$$

$$Z=2 \text{ hours (120 Minutes)}$$

$$\text{Distance} = 15 * 120 / 60 = 30 \text{ kms.}$$

7.

Let the Sum at 15% be Rs. X

Then at 18% be Rs. (24000-x)

$$P1=x, R1=15$$

$$P2=(24000-x)R2=18$$

After 1 year T=1

$$(P1*T*R1)/100 * (P2*T*R2)/100 = 4050$$

$$(x*1*15)/100 + \{(24000-x)*1*18\}/100 = 4050$$

$$15x + 432000 = 18x + 405000$$

$$X = 9000$$

Money Borrowed at 15% = 9000

Money Borrowed at 18% = (24000-9000) = 15000

8.

Let the sums be X and Y

$$R1=6, R2=7, T=2$$

$$(P1*R1*T)/100 + (P2*R2*T)/100 = 354$$

$$(x*6*2)/100 + (y*7*2)/100 = 354$$

$$6x+7y = 17700$$

Also, $x/4 = y/5$

$$5x - 4y = 0$$

$$X = 1200$$

$$Y = 1500$$

$$\text{Sum} = 1200 + 1500 = 2700$$

9.

$$x + \frac{x \times 10 \times 8}{100} = \frac{(34000 - x) \times 10 \times 6}{100} + (340000 - x)$$

$$\text{Or, } x = 160000$$

\therefore Share of elder brother = Rs. 1,80,000

10.

Speed of boat and stream be $2x$ and x respectively.

$$\text{So downstream speed} = 2x + x = 3x,$$

$$\text{Upstream speed} = 2x - x = x$$

Let total distance between points is d km

So he covered d km downstream,

While coming back i.e. upstream he covers $d + \frac{1}{3} \times d = \frac{4d}{3}$ km

Total time for this journey is 10 hrs.

$$\Rightarrow \frac{d}{3x} + \frac{4d}{3x} = 10$$

$$\Rightarrow d = 6x$$

Now also given, that $(2x + x) - (2x - x) = 12$

$$\Rightarrow x = 6$$

So, $d = 36$ km

Now to come to original point, he will have to cover $\frac{1}{3} \times 36 = 12$ km

And with speed $3x = 18$ km/hr (downstream)

11.

$$\text{Volume of cone} = \frac{1}{3} \pi r^2 h$$

$$= \frac{1}{3} \times \frac{22}{7} \times 20 \times 20 \times 24$$

$$= 10057.14 \text{ cm}^3$$

Radius of pipe = 5 mm

$$= 0.5 \text{ cm}$$

Volume of water flowing out of the pipe per minute (in cm^3)

$$= 1000 \times 0.5 \times 0.5 \times \pi$$

$$= 785 \text{ cm}^3$$

Hence, time taken to fill the tank

$$= \frac{10057.14}{785}$$

$$= 12.8 \text{ minutes}$$

Hence, option B is correct.

12.

Drainage pipe can drain complete tank in 60min.

Let the filling pipe can fill the tank in x min

Now, both are operational and tank is half filled

Also remaining half needs to get filled in 10 min

$$10 \left\{ \frac{1}{x} - \frac{1}{60} \right\} = \frac{1}{2}$$

$$\Rightarrow x = 15 \text{ min.}$$

Hence, filling pump needs to have rate be $\frac{60}{15}$

= 4 times the draining rate.

Therefore, option (A) is correct.

13.

Speed can't be negative.

So speed of stream while raining = 9 Km/h

Let, the speed of stream while raining = x Km/h

Speed of boat in still water while raining = $81 \div 4.5 = 18$ Km/h

Speed of stream before rain = $\frac{9}{1.5} = 6$ Km/h

$$\text{So, } \frac{54}{18+x} + \frac{36}{18-x} = 6$$

Speed of boat in still water before rain = $\frac{18}{0.75} = 24$ Km/h

$$972 - 54x + 648 + 36x = 1944 - 6x^2$$

$$6x^2 - 18x - 324 = 0$$

So, time taken by boat to cover 75 Km downstream and 99 Km upstream is ' r ' hours

$$\text{Therefore, } r = \frac{75}{24+6} + \frac{99}{24-6}$$

$$x^2 - 3x - 54 = 0$$

$$r = 2.5 + 5.5 = 8$$

$$x^2 - 9x + 6x - 54 = 0$$

$$x(x-9) + 6(x-9) = 0$$

So, the value of ' r ' = 8

$$(x-9)(x+6) = 0$$

Hence, option D is correct.

$$x = 9, -6$$

14.

Let pipe P takes x hours then the pipe Q will take $x + 12$ hours to fill the tank

$$\frac{1}{x} + \frac{1}{x+12} = \frac{17}{280}$$

Solve the quadratic equation

$$(x+12+x)280 = 17(x^2+12x)$$

$$560x + 3360 = 17x^2 + 204x$$

$$17x^2 - 356x - 3360 = 0$$

By solving, $x = 28$ or -7.06

Both pipes are inlet therefore negative value is not possible

Let pipe R takes r hours to empty the tank, then

$$\frac{1}{28} - \frac{1}{r} = \frac{1}{40}$$

$$\frac{1}{28} - \frac{1}{40} = \frac{1}{r}$$

$$\frac{1}{r} = \frac{10-7}{280} = \frac{3}{280}$$

The time taken by pipe Q = $x + 12 = 40$ hours

When, Q and R operate together then the time taken to fill the tank

$$= \frac{1}{40} - \frac{3}{280} = \frac{7-3}{280} = \frac{4}{280} = \frac{1}{70}$$

The time taken to fill the tank = 70 hours

Hence, option B is correct.

15.

The volume of the pizza = $\pi r^2 \times \text{thickness}$

$$= \frac{22}{7} \times 10.5 \times 10.5 \times 4 = 1386 \text{ cm}^3$$

The volume of small slice of pizza

$$= \frac{\pi r^2 \theta}{360} \times \text{thickness}$$

$$= \frac{22 \times 3 \times 21}{12} = 115.5 \text{ cm}^3$$

$$= \frac{(22/7 \times 21 \times 21 \times 4 \times 30)}{4 \times 360}$$

The volume of the remaining part = $1386 - 115.5 = 1270.5 \text{ cm}^3$

Hence, option B is correct.

16.

Capacity of one tank is = $\text{LCM}\{12, 20, 24\} = 120$ units

In 1 hour, capacity of water that T_1 can fill

$$= \frac{120}{12} = 10 \text{ units}$$

In 1 hour, capacity of water that T_2 can fill

$$= \frac{120}{20} = 6 \text{ units}$$

In 1 hour, capacity of water that T_3 can fill

$$= \frac{120}{24} = 5 \text{ units}$$

In the first hour T_1 is open, in the second hour, T_2 and T_3 are opened.

So, in the set of two hours = $T_1 + (T_2 + T_3)$

$$\rightarrow 10 + (6 + 5) = 21 \text{ units}$$

In 10 hours, capacity that gets filled = $21 \times 5 = 105$ units

Remaining capacity = $120 - 105 = 15$ units

In the next hour, it's T_1 's turn, it fills 10 units/hr. So,

$$\rightarrow 15 - 10 = 5 \text{ units}$$

Now, it's $T_2 + T_3$ turn, it fills 11 units/hr. So, 5 units will be filled in

$$= \frac{5 \times 60}{11} = 27.27 \text{ mins}$$

Total time to fill the tank = $10 + 1 + 27.27 \text{ mins} = 11 \text{ hours } 27.27 \text{ mins}$

Hence, option D is correct.

17.

Smart Approach:-

He got discount of 5% and 10% on the same amount of Rs. 450.

So total discount = 15% of 450 = Rs. 67.5

Hence, option B is correct

Traditional Method:

Total price of the 2 T-shirts = $2 \times 450 = \text{Rs. } 900$

Price of the first T-shirt after 5% discount

$$= 450 - 5 \times \frac{450}{100} = 450 - 22.5 = \text{Rs. } 427.5$$

Price of the second T-shirt after 10% discount

$$= 450 - 10 \times \frac{450}{100} = 450 - 45 = \text{Rs. } 405$$

Amount refunded by the shopkeeper = $\text{Rs. } (22.5 + 45) = \text{Rs. } 67.5$

18.

Distance between New Delhi and Howrah is 1800 km

Let distance between New Delhi and Gaya is x

Distance between Gaya and Howrah is $(1800 - x)$ km

$$\therefore \frac{(2x + 5)}{84} = \frac{2(1800 - x) - 5}{88}$$

$$\therefore x = 876.569 \text{ km}$$

Distance between New Delhi and Gaya is $876.569 \approx 876.6$ km

19.

Let CP (tube light) = 100T, and CP (CFL) = 100C

$$\text{Then CP (LED)} = \frac{60}{100} \times (100T + 100C) = 60(T + C)$$

Case 1: Tube light - 5% profit, CFL - 25% profit, LED - 25% loss
 $105T + 125C + (T + C)45 = 7700 \rightarrow 150T + 170C = 7700$ -----eq (i)

Case 2: Tube light - 20% loss, CFL - 10% profit, LED \rightarrow 16.67% profit
 $80T + 110C + (T + C)70 = 7800 \rightarrow 150T + 180C = 7800$ -----eq (ii)

By eq(ii) - eq(i)
 $10C = 100 \rightarrow C = 10 \rightarrow$ CP (CFL) = 100C = Rs.1000

Putting value of C in eq(ii)
 $150T + 1800 = 7800 \rightarrow 150T = 6000 \rightarrow T = 40$

CP (tube light) = 100T = Rs.4000
CP (LED) = (T + C) 60 = (40 + 10) 60 = Rs.3000

Sum of all three = Rs.8000

20.

Amount spent on repairing of first car = Rs. (x + 5000)

Amount spent on repairing of second car = Rs. x

Total Cost price of first car = Rs. (100000 + x + 5000)

Total Cost price of second car = Rs. (150000 + x)

Selling price of first car = Rs. (105000 + x) \times 1.2 \times 0.75 = 0.9 (105000 + x)

Selling price of second car = Rs. (150000 + x) \times 1.3 \times 0.75 = 0.975 (150000 + x)

Total C.P of Romy = {0.9 (105000 + x) + 0.975 (150000 + x)}

Selling Price of Romy = {0.9 (105000 + x) + 0.975 (150000 + x)} \times 1.2

Given that S.P of Romy = Rs. 360000

$$\{0.9 (105000 + x) + 0.975 (150000 + x)\} \times 1.2 = 360000$$

$$1.875x = 59250$$

$$x = \text{Rs. } 31600$$

Total amount spent by Sanjay on repairing of both the cars = $2x + 5000 = 2(31600) + 5000 = \text{Rs. } 68200$

21. Answer: C

Let D's present age be 'x' years.

So, the present ages of A, B, and C are $(x - 34)$ years, $(x - 32)$ years and $(x - 2)$ years, respectively.

Since the present average age of the family = 25 years

So,

$$\Rightarrow (x - 34) + (x - 32) + (x - 2) + x = 4 * 25$$

$$\Rightarrow 4x - 68 = 100$$

$$\Rightarrow x = 42$$

A's present age = $42 - 34 = 8$ years

B's present age = $42 - 32 = 10$ years

C's present age = $42 - 2 = 40$ years

D's present age = 42 years

Since the average age of the family, when a new baby is born after 't' years = 25.6 years

So,

$$\Rightarrow (8 + t) + (10 + t) + (40 + t) + (42 + t) = 5 * 25.6$$

$$\Rightarrow 100 + 4t = 128$$

$$\Rightarrow t = 7$$

Since C's age $(t - 3)$ years ago = $40 - (7 - 3) = 36$ years

And D's age after $(t - 1)$ years = $42 + (7 - 1) = 48$ years

So, the required ratio = 36: 48 = 3: 4

22. Answer: B

Since the difference between CI and SI on ₹24500 at R% rate after 2 years is ₹352.8.

So,

$$\Rightarrow 24500 * (R/100)^2 = 352.8$$

$$\Rightarrow 24500 * (R^2/10000) = 352.8$$

$$\Rightarrow R^2 = 3528000/24500$$

$$\Rightarrow R = 12$$

Since the difference between CI and SI on ₹(X - Y) at $(R + 4)$ % rate after 2 years is ₹396.8.

So,

$$\Rightarrow (X - Y) * [(12 + 4)/100]^2 = 396.8$$

$$\Rightarrow (X - Y) * (16/100)^2 = 396.8$$

$$\Rightarrow (X - Y) = 396.8 * (10000/256)$$

$$\Rightarrow X - Y = 15500$$

From I:

Since the sum of X and Y = $X + Y = 24500$

So, $X = (24500 + 15500)/2 = 20000$

And, $Y = (24500 - 15500)/2 = 4500$

So, the required percentage = $(4500/20000) * 100 = 22.5\%$

From II:

The SI received on ₹(24500 + X - Y) at 8% rate after 2 years:

$$\Rightarrow [(24500 + 15500) * 8 * 2]/100$$

$$\Rightarrow ₹6400$$

From III:

The value of R = 12

Hence, option (b) is correct.

23. Answer: A

Let the height of the hollow cylinder and that of the solid cylinder be '4x' cm and '3x' cm, respectively.

From the question:

$$\Rightarrow [(22/7) * 21^2 * 4x] - [(22/7) * 14^2 * 3x] = 36960$$

$$\Rightarrow [22 * 63 * 4x] - [22 * 28 * 3x] = 36960$$

$$\Rightarrow 5544x - 1848x = 36960$$

$$\Rightarrow x = 10$$

Since, the height of the solid cylinder = $3 * 10 = 30$ cm

And the radius of the solid cylinder = 14 cm

So, the volume of the solid cylinder = $(22/7) * 14^2 * 30 = 18480 \text{ cm}^3$

Since the volume of each cuboid, formed by melting the solid cylinder = $20 * 12 * 7 = 1680 \text{ cm}^3$

So, the number of cuboids formed = $18480/1680 = 11$