

Solution:

1(1)

Average marks scored by all students in Math

$$\begin{aligned} &= \left[ \frac{67 + 58 + 63 + 72 + 66}{5} \right] \times \frac{200}{100} \\ &= \frac{326}{5} \times 2 = 130.4 \end{aligned}$$

2(2)

Required total

$$\begin{aligned} &= \frac{72}{100} \times 200 + \frac{60}{100} \times 75 + \frac{46}{100} \times 100 + \frac{92}{100} \times 100 + \frac{72}{100} \times 75 + \frac{56}{100} \times 50 \\ &= 144 + 45 + 46 + 92 + 54 + 28 \\ &= 409 \end{aligned}$$

3(3)

Required difference = (132 + 40.5) - (68 + 63)

$$= 172.5 - 131 = 41.5$$

$$20\% \text{ of difference} = \frac{20}{100} \times 41.5 = 8.3$$

4(5)

$$\text{Required Ratio} = \frac{134 + 49}{116 + 77} = \frac{183}{193}$$

5(5)

Marks scored by Rohit in Chemistry

$$= \frac{56}{100} \times 50 = 28.$$

Marks scored by Rohit in Biology

$$= \frac{60}{100} \times 75 = 45$$

$$\therefore \text{Difference} = 45 - 28 = 17.$$

6(4)

Required average no. of boys

$$\begin{aligned} &= \frac{1}{2} \left( \frac{6}{11} \times \frac{110}{360} \times 1,08,000 + \frac{3}{5} \times \frac{90}{360} \times 108,000 \right) \\ &= \frac{1}{2} \times (18,000 + 16,200) \\ &= 17,100 \end{aligned}$$

7(2)

$$\begin{aligned} \text{Total no. of boys from Ghaziabad center} &= \frac{4}{5} \times \frac{75}{360} \times 1,08,000 \\ &= 18,000 \end{aligned}$$

$$\begin{aligned} \text{Total no. of boys from Jahangir puri center} &= \frac{5}{8} \times \frac{40}{360} \times 10,80,000 \\ &= \frac{5}{8} \times \frac{40}{360} \times 108,000 \\ &= 7,500 \end{aligned}$$

$$\begin{aligned} \therefore \text{Required percentage} &= \frac{18,000 - 7,500}{7,500} \times 100 \\ &= 140\% \end{aligned}$$

8(3)

Total girls from centres Dwarka and Ghaziabad together

$$= \frac{1}{3} \times \frac{45}{360} \times 1,08,000 + \frac{1}{5} \times \frac{75}{360} \times 108,000$$

$$= 4500 + 4500 = 9000$$

Total no. of girls from centres Mundaka & Jahangir puri together

$$= \frac{2}{5} \times \frac{90}{360} \times 1,08,000 + \frac{3}{8} \times \frac{40}{360} \times 1,08,000$$

$$= 10800 + 4500$$

$$= 15300$$

$$\therefore \text{required difference} = 15300 - 9000$$

$$= 6300$$

9(4)

Required no. of boys

$$= 66\frac{2}{3}\% \text{ of } 6\% \text{ of } \frac{110}{360} \times 1,08,000$$

$$= \frac{2}{3} \times \frac{6}{100} \times \frac{11}{360} \times 108000$$

$$= 1320$$

10(2)

Total no. of girls from Noida sector-62 and Dwarka together

$$= \frac{5}{11} \times \frac{110}{360} \times 108,000 + \frac{1}{3} \times \frac{45}{360} \times 108000$$

$$= 15000 + 4500 = 19500$$

Total no. of girls from Ghaziabad and Jahangir puri together

$$= \frac{1}{5} \times \frac{75}{360} \times 1,08,000 + \frac{3}{8} \times \frac{40}{360} \times 1,08,000$$

$$= 4500 + 4500$$

$$= 9000$$

$$\text{Required percentage} = \frac{19500}{9000} \times 100$$

$$= 216\frac{2}{3}\%$$

11(3)

Total vehicles produced in 2005 = 34000 + 42000 + 86000 = 162000

$$\text{Total vehicles exported in 2005} = \left(\frac{15}{100} \times 34000\right) + \left(\frac{20}{100} \times 42000\right) + \left(\frac{25}{100} \times 86000\right) = 35000$$

$$\text{Required percentage} = \frac{35000}{162000} \times 100 = 21.60\%$$

12(1)

$$\text{Export of bikes in 2001 and 2002} = \left(\frac{40}{100} \times 38000\right) + \left(\frac{35}{100} \times 56000\right) = 34800$$

$$\text{Export of cars in 2005 and 2006} = \left(\frac{25}{100} \times 86000\right) + \left(\frac{35}{100} \times 60000\right) = 42500$$

$$\text{Required ratio} = \frac{34800}{42500} = 0.82$$

13(1)

Export of bikes

$$\text{In 2001} = \frac{40}{100} \times 38000 = 15200$$

$$\text{In 2002} = \frac{35}{100} \times 56000 = 19600$$

$$\text{In 2003} = \frac{25}{100} \times 84000 = 21000$$

$$\text{In 2004} = \frac{10}{100} \times 40000 = 4000$$

$$\text{In 2005} = \frac{20}{100} \times 42000 = 8400$$

$$\text{In 2006} = \frac{25}{100} \times 26000 = 6500$$

So, the export of bike is 3<sup>rd</sup> highest in 2001

14(5)

$$\text{Required average} = \frac{\left(\frac{80}{100} \times 48000\right) + \left(\frac{25}{100} \times 40000\right) + \left(\frac{80}{100} \times 75000\right) + \left(\frac{15}{100} \times 48000\right)}{4} = 13525$$

15(1)

$$\begin{aligned}\text{Average production in first 3 years} &= \left(\frac{146+140+234}{3}\right) \times 1000 = \frac{520000}{3} \\ \text{Average production in last 3 years} &= \left(\frac{148+162+120}{3}\right) \times 1000 = \frac{430000}{3} \\ \text{Difference} &= \frac{520000}{3} - \frac{430000}{3} = 30000\end{aligned}$$

16(2)

$$\begin{aligned}(16)^{\frac{1}{2}} + (36)^2 &= (?)^2 + 459 \\ \text{or, } (?)^2 &= 1296 + 4 - 459 = 841 \\ \text{or, } ? &= \pm 29\end{aligned}$$

17(4)

$$? = \frac{44}{10} \times \frac{5}{16} \times \frac{30}{100} \times 216 = 89.1$$

18(5)

$$\begin{aligned}(1.1)^2 - (4.24 \times 0.04) &=? \\ ? &= 1.0404\end{aligned}$$

19(5)

$$\begin{aligned}\frac{(0.538+0.462) \times (0.538-0.462)}{0.076} &=? \\ \frac{1 \times 0.076}{0.076} &=? \\ ? &= 1\end{aligned}$$

20(10)

$$\begin{aligned}?^3 &= \frac{729 \times 6}{9} + 343 + 72 + 431 = 1331 \\ \text{or, } ? &= 11\end{aligned}$$

21(3) 80

22(1) 9:4

23 (5). "16"

24(3)"2:15"

25(2)"1510"

26(5) "18"

27.(2). "47"

28(5) 715

29.(1) "135"

30(2) "1521"

31 (2) "2905.5"

32 ( 5). "242"

Explanation :The difference is number between  $1^3, 2^3, 3^3, 4^3, 5^3$

33. (4). "1437"

34(4). " 200%"

35(2) 232

36(1)253

- 37(3)6
- 38(2)1.25
- 39(4) 0.63
- 40(3) 0.347
- 41(1)  $12\frac{1}{2}\%$
- 42©22,950
- 43(B) Rs. 37.50
- 44(C) 54°
- 45(B) Rs. 157.50
- 46(A) Binding Cost and Transportation Cost
- 47(A) Rs. 187.50
- 48(D) Paper Cost and Printing Cost
- 49(D) 25%
- 50(B) Rs. 22,500

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