Mathematics Section – Part 1

Qs. 1-20. What should come in place of the question mark (?) in the following questions?

1. $963 + 560 \div 35 = ?$

(1) 45   (2) 981
(3) 870   (4) 43
(5) None of these

2. $14400 \div 64 \div 9 = ?$

(1) 27   (2) 23
(3) 29   (4) 21
(5) None of these

3. $14.8 \times 12.3 \times 8.6 = ?$

(1) 1555.454   (2) 1535.445
(3) 1545.545   (4) 1565.544
(5) None of these

4. 45% of 720 = 30% of ?

(1) 960   (2) 1080
(3) 1240   (4) 820
(5) None of these

5. $3\frac{1}{6} + 4\frac{2}{3} - 1\frac{1}{4} = ?$

(1) $4\frac{1}{6}$ (2) $6\frac{2}{9}$
(3) $6\frac{7}{12}$ (4) $5\frac{1}{9}$
(5) None of these

6. $63251 + 52894 = ? + 37624$

(1) 87812   (2) 67281
(3) 76821   (4) 78521
(5) None of these

7. $7\frac{2}{7}$ of $189 + 452 = 2000 - ?$

(1) 183   (2) 164
(3) 170   (4) 198
(5) None of these

8. 68% of 595 – 43% of 372 = ?

(1) 244.64   (2) 232.84
(3) 278.44   (4) 260.24
(5) None of these

9. 35% of (?) = 2175.95

(1) 6712   (2) 6217
(3) 6127   (4) 6721
(5) None of these

10. $? \div 52 \times 12 = 252$

(1) 1242   (2) 992
(3) 1142   (4) 1346
(5) None of these

11. $(45)^2 + (21)^2 = (?)^2 + 257$

(1) 51   (2) 49
(3) 45   (4) 47
(5) None of these

12. $90780 \div \sqrt{?} = 85 \times 12$

(1) 89   (2) 7921
(3) 7569   (4) 87
(5) None of these

13. $1862 \div 28 = ?$

(1) 66.5   (2) 67
(3) 64.5   (4) 69
(5) None of these

14. 63% of 962 + ? = 999

(1) 346.92   (2) 368.64
(3) 392.94   (4) 402.68
(5) None of these

15. $743 + 958 = ?\%$ of 5670

(1) 34   (2) 26
(3) 30   (4) 22
(5) None of these

16. $\sqrt{5929} = ?$

(1) 77   (2) 83
(3) 87   (4) 93
(5) None of these

17. $638 + 254 \div 8 \times 4 = ?$

(1) 646   (2) 545
(3) 446   (4) 765
(5) None of these

18. 65% of 400 + $\sqrt{?}$ = 44% of 800 – 12% of 400

(1) 1936   (2) 44
(3) 2116   (4) 46
(5) None of these

19. $\dfrac{18 \times 14 + 46}{16 \times 10 - 23} = ?$

(1) $1\frac{1}{2}$ (2) $2\frac{24}{137}$
(3) $4\frac{37}{138}$ (4) $3\frac{32}{173}$
(5) None of these

20. $8 \times 5 + (?)^2 = (11)^2$

(1) 81   (2) 6561

(3) 9   (4) 27

(5) None of these

21. What should come in place of the question mark (?) in the following number series?

1   4   14   45   139   422   ?

(1) 1268   (2) 1234

(3) 1272   (4) 1216

(5) None of these

22. 38 per cent of first number is 52 per cent of the second number. What is the respective ratio of the first number to the second number?

(1) 5 : 4   (2) 16 : 9

(3) 26 : 19   (4) Cannot be determined

(5) None of these

23. What is the compound interest accrued on an amount of Rs 12,000, at the rate of 10 p.c.p.a. at the end of 3 years?

(1) Rs 3,972   (2) Rs 2,567

(3) Rs 4,780   (4) Rs 5,609

(5) None of these

24. The average age of a man and his son is 54 years. The ratio of their ages is 23 : 13 respectively. What will be ratio of their ages after 6 years?

(1) 10 : 7   (2) 5 : 3

(3) 4 : 3   (4) 3 : 2

(5) None of these

25. A single person takes 3 minutes to write a letter. If from 10 a.m. to 12.00 noon, 1960 letters are to be written, how many persons should be employed on this job?

(1) 53   (2) 47

(3) 51   (4) 49

(5) None of these

26. The simple interest accrued on an amount of Rs 9,530 at the end of 6 years is Rs 2,859. What is the rate of interest p.c.p.a.?

(1) 5   (2) 7

(3) 9   (4) 11

(5) None of these

27. The cost of 10 Chairs and 15 Tables is Rs 15,525. What is the cost of 8 Chairs and 12 Tables?

(1) Rs 13,560   (2) Rs 12,420

(3) Rs 14,840   (4) Cannot be determined

(5) None of these

28. The owner of a Gift shop charges his customer 28% more than the cost price. If a customer paid Rs 1,408 for some Soft toys, then what was the cost price of those Soft toys?

(1) Rs 1,300   (2) Rs 1,000

(3) Rs 1,200   (4) Rs 1,400

(5) None of these

29. A plot of 715 sq ft is available at the rate of Rs 3,850 per sq ft. If 40% of the total cost of the plot is to be paid for booking the plot, how much is the booking amount?

(1) Rs 11,10,000   (2) Rs 11,01,100

(3) Rs 11,01,000   (4) Rs 11,00,100

(5) None of these

30. If the product of two successive positive integers is 3192, which is the smaller integer?

(1) 52   (2) 58

(3) 54   (4) 56

(5) None of these

31. What **approximate** value should come in place of the question mark (?) in the following question?

$59.786 \div 14.444 \times 8.321 = ?$

(1) 49   (2) 58

(3) 22   (4) 66

(5) None of these

32. A sum of money is divided among A, B, C and D in the ratio of 4 : 5 : 7 : 11 respectively. If the share of C is Rs 1,351, then what is the total amount of money of A and D together?

(1) Rs 2,123   (2) Rs 2,316

(3) Rs 2,565   (4) Rs 2,895

(5) None of these

33. Mr Madhur deposits an amount of Rs 58,750 to obtain a simple interest at the rate of 12 p.c.p.a. for 4 years. What total amount will Mr Madhur get at the end of 4 years?

(1) Rs 91,230   (2) Rs 86,950

(3) Rs 74,760   (4) Rs 69,540

(5) None of these

34. If an amount of Rs 96,393 is distributed equally amongst 33 children. How much amount would each child get?

(1) Rs 2,789   (2) Rs 2,563

(3) Rs 2,860   (4) Rs 2,921

(5) None of these

35. The difference between 73% of a number and 58% of the same number is 960. What is 22% of that number?

(1) 1408   (2) 1232

(3) 1324   (4) 1536

(5) None of these

36. One-seventh of a number is 39. What will be 56% of that number?

(1) 164.66   (2) 152.88

(3) 178.22   (4) 182.44

(5) None of these

37. In a class of 55 students and 3 teachers, each student got sweets that are 20% of the total number of students and each teacher got sweets that are 60% of the total number of students. How many sweets were there?

(1) 737   (2) 671

(3) 714   (4) 638

(5) None of these

38. If $(108)^2$ is added to the square of a number, the answer so obtained is 13033. What is the number?

(1) 33   (2) 43

(3) 37   (4) 47

(5) None of these

39. In an examination it is required to get 350 of the aggregate marks to pass. A student gets 32% marks and is declared failed by 70 marks. What are the maximum aggregate marks a student can get?

(1) 885   (2) 865

(3) 875   (4) Cannot be determined

(5) None of these

40. Which number should replace both the question marks in the following equation?

$$\frac{?}{388} = \frac{97}{?}$$

(1) 222   (2) 196

(3) 206   (4) 178

(5) None of these

ANSWERS AND EXPLANATIONS

1. (5)   2. (5)   3. (4)

4. (2)   5. (3)   6. (4)

7. (5)   8. (1)   9. (2)

10. (5)   11. (4)   12. (2)

13. (1)   14. (3)   15. (3)

16. (1)   17. (4)   18. (1)

19. (2)   20. (3)

21. (3) Multiplying each term by 3 and adding 1, 2, 3, 4, 5, 6 we get the next nos

∴ Reqd no. = $422 \times 3 + 6 = 1272$.

22. (3) $\frac{38}{100}x = \frac{52}{100}y \Rightarrow \frac{x}{y} = \frac{26}{19}$

23. (1) C.I. $= 12000 \left[(1 + \frac{10}{100})^3 - 1 \right] = Rs\ 3972$

24. (2) $23x + 13x = 54 \times 2 \Rightarrow x = 3$

Reqd ratio $= \frac{23 \times 3 + 6}{13 \times 3 + 6} = \frac{5}{3}$

25. (4) $\frac{1960}{\frac{(2 \times 60)}{3}} = 49$ [∵ a person can write $\frac{2 \times 60}{3}$ letters in given time]

26. (1) $R = \frac{2859 \times 100}{9530 \times 6} = 5$

Rate $= 5\%$ p.a.

27. (2) $10x + 15y = 15525$

∴ $2x + 3y = 3105$ (i) [x=Cost of a chair, y = Cost of 1 table]

Multiply (i) by 4, we get, $8x + 12y = 12420$

28. (5) Reqd cost $= 1408 \times \frac{100}{128} = Rs\ 1100$

29. (2) Reqd amount $= 715 \times 3850 \times \frac{40}{100}$

$= Rs\ 11,01,100$

30. (4) $x(x+1) = 3192 \Rightarrow x = 56$

31. (5)

32. (4) $\frac{7}{4+5+7+11}x = 1351 \Rightarrow x = 193 \times 27$

Reqd amount $= \frac{4+11}{27} \times 193 \times 27$

$= Rs\ 2895$

33. (2) $A = 58750 + \frac{58750 \times 12 \times 4}{100}$

$= Rs\ 86950$

34. (4) Each child gets $= \frac{96393}{33} = Rs\ 2921$

35. (1) $\frac{(73-58)}{100}x = 960 \Rightarrow x = 6400$

∴ $\frac{22}{100} \times 6400 = Rs\ 1408$

36. (2)

37. (5) Total sweats

$= (\frac{20}{100} \times 55) \times 55 + 3 \times (\frac{60}{100} \times 55)$

$= 704$

38. (3) $x^2 + 108^2 = 13033 \Rightarrow x = 37$

39. (3) $\frac{32}{100}x + 70 = 350 \Rightarrow x = 875$

40. (5) $\frac{x}{388} = \frac{97}{x} \Rightarrow x = \sqrt{97 \times 388}$

$= 2 \times 97 = 194$

Mathematics Section – Part 2

Qs. 1-25. What should come in place of the question mark (?) in the following questions?

1. $[(4)^3 \times (5)^4] \div (4)^5 = ?$
(1) 30.0925   (2) 39.0625
(3) 35.6015   (4) 29.0825
(5) None of these

2. $\dfrac{1.6 \times 3.2}{0.08} = ?$

(1) 6.4   (2) 8
(3) 64   (4) 0.8
(5) None of these

3. $(7857 + 3596 + 4123) \div 96 = ?$
(1) 155.06   (2) 162.25
(3) 151.83   (4) 165.70
(5) None of these

4. $741560 + 935416 + 1143 + 17364 = ?$
(1) 1694583   (2) 1695438
(3) 1695483   (4) 1659483
(5) None of these

5. $(84)^2 \div \sqrt{?} = 168$
(1) 1936   (2) 1521
(3) 1681   (4) 1764
(5) None of these

6. $514789 - 317463 - 87695 - 11207 = ?$
(1) 96584   (2) 98242
(3) 96845   (4) 98424
(5) None of these

7. $8926 - ?\% \text{ of } 650 = 8848$
(1) 15   (2) 8
(3) 12   (4) 10
(5) None of these

8. $\sqrt[3]{50653} = ?$
(1) 39   (2) 43
(3) 33   (4) 41
(5) None of these

9. $(17891 + 16239 - 26352) \times ? = 93336$
(1) 12   (2) 15
(3) 18   (4) 8
(5) None of these

10. $\dfrac{1}{4} \times 6624 \times \dfrac{1}{6} \times 12 = ?$
(1) 3312   (2) 3864
(3) 2208   (4) 4416
(5) None of these

11. $\dfrac{18 \times 15 - 50}{(40 \times 80) \div 160} = ?$
(1) 20   (2) 8.5
(3) 11.5   (4) 22
(5) None of these

12. 36% of 4800 × 0.2% of 1320 = ?
(1) 4535.52   (2) 4551.36
(3) 4561.92   (4) 4572.48
(5) None of these

13. $\sqrt{?} \times \sqrt{1681} = 2296$
(1) 2196   (2) 3364
(3) 2809   (4) 3025
(5) None of these

14. $93 \times 45 \div 25 = ?$
(1) 167.4   (2) 837
(3) 279   (4) 130.2
(5) None of these

15. $0.08 \times ? \times 1.6 = 0.2944$
(1) 1.3   (2) 0.4
(3) 0.2   (4) 2.3
(5) None of these

16. $6 \times 66 \times 666 = ?$
(1) 263736   (2) 267336
(3) 263763   (4) 263376
(5) None of these

17. $5\dfrac{1}{7} \times 8\dfrac{1}{6} \div 7\dfrac{7}{8} = ?$

(1) $1\dfrac{7}{9}$ (2) $1\dfrac{7}{8}$

(3) $5\dfrac{1}{3}$ (4) $5\dfrac{2}{3}$

(5) **None of these**

18. $(7)^3 \div \sqrt{?} + 7 = 14$
(1) 49   (2) 1764
(3) 441   (4) 3136
(5) None of these

19. $\sqrt[3]{12167} \times ? = 1035$
(1) 35   (2) 25
(3) 55   (4) 15
(5) None of these

20. $1256 \times 3892 = ?$
(1) 4883582   (2) 4888352
(3) 4888532   (4) 4883852
(5) None of these

21. $0.08 \times 0.5 + 0.9 = $?
(1) 1.3   (2) 0.94
(3) 0.112   (4) 1.5
(5) None of these

22. $129.36 - 12.57 + 97.31 = $?
(1) 218.20   (2) 44.62
(3) 214.10   (4) 19.48
(5) None of these

23. $8195 \div 745 + ? \times 12 = 7847$
(1) 648   (2) 593
(3) 601   (4) 653
(5) None of these

24. $35568 \div ?\% \text{ of } 650 = 456$
(1) 12   (2) 16
(3) 18   (4) 14
(5) None of these

25. 15% of 6500 = ?% of 12500
(1) 8.2   (2) 7.5
(3) 6.3   (4) 7.8
(5) None of these

26. What should come in place of the question mark (?) in the following number series?
3   3   12   108   ?   43200
(1) 2700   (2) 1728
(3) 972   (4) 432
(5) None of these

27. The population of a town is 126800. It increases by 15% in the 1st year and decreases by 20% in the 2nd year. What is the population of the town at the end of 2 years?
(1) 174984   (2) 135996
(3) 116656   (4) 145820
(5) None of these

28. If an amount of Rs 1,72,850/- is equally distributed amongst 25 people, how much amount would each person get?
(1) Rs 8912.50   (2) Rs 8642.50
(3) Rs 7130   (4) Rs 6914
(5) None of these

29. The area of a rectangle is 4 times the area of a square. The length of the rectangle is 90 cms and the breadth of the rectangle is $\frac{2}{3}$rd of the side of the square. What is the side of the square?
(1) 10 cms   (2) 20 cms
(3) 9 cms   (4) Cannot be determined
(5) None of these

30. What **approximate** value should come in place of the question mark (?) in the following question?
$4123 \div (2.3)^2 - 446 = $?
(1) 401   (2) 441
(3) 301   (4) 333
(5) 386

31. If $x + y = 18$ and $xy = 72$, what is the value of $(x)^2 + (y)^2$?
(1) 120   (2) 90

(3) 180   (4) Cannot be determined
(5) None of these

32. The difference between a two digit number and the number obtained after interchanging the two digits of the two digit number is 27. The sum of the two digits of the two digit number is 15. What is the two digit number?
(1) 87   (2) 96
(3) 69   (4) Cannot be determined
(5) None of these

33. The difference between 75% of a number and 20% of the same number is 378.4. What is 40% of that number?
(1) 275.2   (2) 274
(3) 267.2   (4) 266
(5) None of these

34. The average of four positive integers is 73.5. The highest integer is 108 and the lowest integer is 29. The difference between the remaining two integers is 15. Which of the following is the smaller of the remaining two integers?
(1) 80   (2) 86
(3) 73   (4) Cannot be determined
(5) None of these

35. Mr Deepak invested an amount of Rs 21,250 for 6 years. At what rate of simple interest will he obtain the total amount of Rs 26,350 at the end of 6 years?
(1) 6 p.c.p.a.   (2) 5 p.c.p.a.
(3) 8 p.c.p.a.   (4) 12 p.c.p.a.
(5) None of these

36. Which least number shall be added to 8115 to make it a perfect square?
(1) 349   (2) 166
(3) 144   (4) 194
(5) None of these

37. In how many different ways can the letters of the word 'INHALE' be arranged?
(1) 720   (2) 360
(3) 120   (4) 650
(5) None of these

38. A gold bracelet is sold for Rs 14,500 at a loss of 20%. What is the cost price of the gold bracelet?
(1) Rs 18,125   (2) Rs 17,400
(3) Rs 15,225   (4) Rs 16,800
(5) None of these

39. Find the average of the following sets of scores.
124   856   331   227   963   338   259   662
(1) 570   (2) 660
(3) 480   (4) 350
(5) None of these

40. What **approximate** amount of compound interest can be obtained on an amount of Rs 3,080 at the rate of 7 p.c.p.a. at the end of 3 years?

(1) Rs 586   (2) Rs 693
(3) Rs 646   (4) Rs 596
(5) Rs 621

41. Five bells begin to toll together at intervals of 9 seconds, 6 seconds, 4 seconds, 10 seconds and 8 seconds respectively. How many times will they toll together in the span of one hour (excluding the toll at the start)?

(1) 5   (2) 8
(3) 10   (4) Cannot be determined
(5) None of these

42. The ratio of the present ages of Sushma and Karishma is 6 : 7 respectively. The ratio of their ages 8 years hence would be 8 : 9 respectively. What would be the respective ratio of their ages after 12 years?

(1) 17 : 19   (2) 15 : 17
(3) 9 : 10   (4) 10 : 11
(5) None of these

43. In an examination it is required to get 40% of the aggregate marks to pass. A student gets 265 marks and is declared fail by 55 marks. What is the maximum aggregate marks a student can get?

(1) 800   (2) 750
(3) 650   (4) Cannot be determined
(5) None of these

44. The sum of four consecutive even numbers A, B, C and D is 180. What is the sum of the set of next four consecutive even numbers?

(1) 214   (2) 212
(3) 196   (4) 204
(5) None of these

45. If the numerator of a fraction is increased by 200% and the denominator of the fraction is increased by 150%, the resultant fraction is $\dfrac{9}{35}$. What is the original fraction?

(1) $\dfrac{3}{10}$ (2) $\dfrac{2}{15}$
(3) $\dfrac{3}{16}$ (4) $\dfrac{2}{7}$
(5) **None of these**

46. 40% of 15% of $\dfrac{3}{4}$th of a number is 153. What is the number?

(1) 3400   (2) 3650
(3) 3600   (4) 3200
(5) None of these

47. What is 786 times 964?

(1) 759276   (2) 749844
(3) 75416   (4) 757704
(5) None of these

48. If $(46)^2$ is subtracted from the square of a number, the answer so obtained is 485. What is the number?

(1) 49   (2) 51
(3) 56   (4) 53

(5) None of these

49. In the following number series one of the numbers is **wrong.** Find out the **wrong** number.

14   28   112   672   5374   53760

(1) 112   (2) 672
(3) 5374   (4) 28
(5) None of these

50. If 47a + 47b = 5452, what is the average of a and b?

(1) 116   (2) 23.5
(3) 96   (4) 58
(5) None of these

ANSWERS AND EXPLANATIONS			
1. (3)	2. (3)	3. (2)	4. (3)
5. (4)	6. (4)	7. (3)	8. (5)
9. (1)	10. (1)		

11. (5) Ans 11

12. (3)

13. (5) $\sqrt{x} \times 41 = 2296$ $\sqrt{1681} = 41$

$\therefore \sqrt{x} = \dfrac{2296}{41} = 56$

$\therefore x = 56^2 = 3136$

14. (1)

18. (5) $\dfrac{343}{\sqrt{x}} = 14 - 7 = 7 \Rightarrow \sqrt{x} = \dfrac{343}{7}$

$\sqrt{x} = 49 \Rightarrow x = 49^2 = 2401$

19. (5) $\sqrt[3]{12167} = 23 \therefore x = \dfrac{1035}{23} = 45$

20. (2)

24. (1) $\dfrac{35568}{456} = \dfrac{x}{100} \times 650 \Rightarrow x = 12$

25. (4)

26. (2) **Multiply by** $1^2, 2^2, 3^2, 4^2, 5^2$ **to get the series**

Reqd. no. $= 108 \times 4^2 = 1728$

27. (3) **Reqd. population**

$= 126800 \left(1 + \dfrac{15}{100}\right)\left(1 - \dfrac{20}{100}\right) = 116656$

28. (4) **Rs** 172850 ÷ 25 = **Rs** 6914

29. (5) L = 90 cm, B = $\dfrac{2}{3}$a

a = side of a square

$90 \times \dfrac{2}{3}a = 4a^2 \Rightarrow a = 15\,cm$

30. (4)

31. (3) $x^2 + y^2 = (x + y)^2 - 2xy = 18^2 - 2 \times 72 = 180$

32. (2) **Let the digits at unit's and ten's places be x and y resp.**

$\therefore$ No. = 10y + x

ATS (10y + x) − (10x + y) = 27

$\Rightarrow y - x = 3$

Also $y + x = 15$

Solving the equs. we get

$y = 9, x = 6$

$\therefore$ No. $= 96$

33. (1) $\dfrac{75}{100}x - \dfrac{20}{100}x = \dfrac{55}{100}x = 378.4 \Rightarrow x = 688$

$688 \times \dfrac{40}{100} = 275.2$

34. (5) $73.5 \times 4 - 108 - 29 = x + y$

$\Rightarrow x + y = 157,$

$x - y = 15$

$\therefore x = 86, y = 71$

35. (5) $R = \dfrac{I \times 100}{P \times R} = \dfrac{(26350 - 21250) \times 100}{21250 \times 6} = 4$

36. (2) $90^2 < 8115 < 91^2$

$\therefore$ Reqd. least no. to be added

$= 91^2 - 8115 = 166$

37. (1) INHALE

There are 6 different letters which can be arranged in $6! = 720$ ways

38. (1) C.P. $= \dfrac{\text{S.P.} \times 100}{(100 - \text{L\%})} = 14500 \times \dfrac{100}{80} = $ Rs 18125

39. (5) Average $= \dfrac{\text{Total Sum of Nos.}}{\text{No. of nos.}} = 470$

40. (2) CI $= P\left[(1 + \dfrac{R}{100})^n - 1\right] = $ Rs 693 (approx.)

41. (3) LCM of 9, 6, 4, 10, 8 $= 360$

360 secs. $= 6$ minutes

Five bells will toll together after every 6 min

$\therefore$ Reqd. no. $=$ In 1 hr they will toll together 10 times

42. (3) $\dfrac{6x + 8}{7x + 8} = \dfrac{8}{9} \Rightarrow x = 4$

$\therefore$ Reqd. ratio $= \dfrac{24 + 12}{28 + 12} = \dfrac{36}{40} = \dfrac{9}{10}$

43. (1) 40% of $x = 265 + 55 \Rightarrow x = 800$

44. (2) $x + (x + 2) + (x + 4) + (x + 6) = 180$

$\Rightarrow x = 42$

Reqd. sum of next four consecutive even nos.

$= (x + 8) + (x + 10) + (x + 12) + (x + 14)$

$= 4x + 44$

$= 4 \times 42 + 44 = 212$

45. (5) $\dfrac{\dfrac{100 + 200}{100}x}{\dfrac{100 + 150}{100}y} = \dfrac{9}{35} \Rightarrow \dfrac{x}{y} = \dfrac{3}{14}$

46. (1) $\dfrac{40}{100}$ of $\dfrac{15}{100}$ of $\dfrac{3}{4}$ of $x = 153 \Rightarrow x = 3400$

47. (4)

48. (2) $x^2 - 46^2 = 485 \Rightarrow x^2 = 2601 \Rightarrow x = 51$

49. (3) Multiplying by 2, 4, 6, 8, 10 we get the next no.

$\therefore$ 5374 is wrong. It should be 5376

$672 \times 8 = 5376$

50. (4) $a + b = \dfrac{5452}{47} = 116$

$\therefore$ Average of $a + b = \dfrac{a + b}{2} = \dfrac{116}{2} = 58$

Quantitative Aptitude

43. (1) $R = \dfrac{I \times 100}{P \times T} = \dfrac{.40 \times 100}{1 \times 4} = $ Rs 10

Reqd. I $= \dfrac{450 \times 10 \times 2}{100} = $ Rs 90

44. (5) Production in 2006

$= 70$ lakh tonnes $(1 + \dfrac{8}{100})^2$

$= 81.648$ lakh tonnes

45. (5) Computer A processes $\dfrac{60}{3}$ i.e. 20 inputs in 1 hour

Computer B processes $\dfrac{60}{5} = 12$ inputs in 1 hour

Inputs processed by A, B, C in 1 hour

$= 14 \times 3 = 42$

$\therefore$ Inputs processed by C in 1 hour

$= 42 - (20 + 12) = 10$

Computer C alone takes $\dfrac{60}{8} = 7\dfrac{1}{2}$ minutes to process an input

46. (4)

47. (2) Let Rajan's salary be Rs x

$\therefore \dfrac{1}{2}$ Sunita's salary $= \dfrac{2x}{5}$

$\therefore$ Sunita's salary $= \dfrac{4x}{5}$

Ratio of Sunita's and Rajan's salary

$= \dfrac{4x}{5} : x = 4 : 5$

Rajan's salary $= \dfrac{5}{9} \times 36000 = $ Rs 20,000

48. (3) Reqd. amount $= \dfrac{54 \times 60}{54 - 9} = $ Rs 72

$\therefore$ Additional amount $= 72 - 60 = 12$

49. (3) $\dfrac{3x}{5x + 21} = \dfrac{3}{8} \Rightarrow x = 7 \therefore$ Managers $= 3x = 21$

50. (1) Change in decimals

Mathematics Section – Part 3

Q. 1-5. What will come in place of the question mark (?) in the following number series?

1. 3 19 115 691 ? 24883
(1) 6923   (2) 4147   (3) 2719
(4) 1463   (5) None of these

2. 5 10 20 ? 80 160
(1) 30   (2) 60   (3) 40
(4) 50   (5) None of these

3. 10 11 14 19 26 ?
(1) 40   (2) 25   (3) 39
(4) 27   (5) None of these

4. 1598 798 398 198 ? 48
(1) 56   (2) 74   (3) 68
(4) 98   (5) None of these

5. 5 10 15 20 25 ?
(1) 35   (2) 40   (3) 25
(4) 20   (5) None of these

Q. 6-25. What will come in place of the question mark(?) in the following questions?

6. $\sqrt{\sqrt{625} + \sqrt{576}} = ?$

(1) 49   (2) 8   (3) 54
(4) 7   (5) None of these

7. $\frac{1}{5}$ of $\frac{1}{2}$ of $\frac{1}{3}$ of ? = 19
(1) 570   (2) 750   (3) 273
(4) 372   (5) None of these

8. 99.99 + 666.66 = ?
(1) 728.59   (2) 766   (3) 766.65
(4) 676.95   (5) None of these

9. 17% of 95 = ?
(1) 18.93   (2) 16.15   (3) 61
(4) 15.16   (5) None of these

10. 8 + 96 ÷ 3 = ?
(1) 109   (2) 45   (3) 21
(4) 39   (5) None of these

11. $x^2 \times x^3 = ?$
(1) x^2 (2) x^3 (3) x^5
(4) x^4 (5) None of these

12. $\frac{1}{x} + x = ?$

(1) $\frac{1 + x}{x}$ (2) $\frac{1 + x^2}{x}$

(3) $x^2 + 1$ (4) $1 + x$

(5) None of these

13. ? % of 220 = 99
(1) 45   (2) 55   (3) 35
(4) 40   (5) None of these

14. $\frac{6.5}{0.13} = ?$
(1) 0.05   (2) 0.5   (3) 5
(4) 50   (5) None of these

15. 3.75 × 4.5 = ?
(1) 0.1687   (2) 1.6875   (3) 16.875
(4) 6.875   (5) None of these

16. 7.8745 – 4.9352 = ?
(1) 3.4156   (2) 3.1412   (3) 2.9393
(4) 2.3949   (5) None of these

17. 17 × 9 × 4 = ?
(1) 612   (2) 621   (3) 516
(4) 561   (5) None of these

18. (56 + 4) × 3 = ?
(1) 120   (2) 180   (3) 68
(4) 86   (5) None of these

19. 78 ÷ 13 ÷ 3 = ?
(1) 18.00   (2) 5   (3) 11.53
(4) 2   (5) None of these

20. 20% of 40 = ?
(1) 8   (2) 13   (3) 50
(4) 15   (5) None of these

21. 16 – 16 ÷ 2 = ?
(1) 8   (2) 0.5   (3) 1
(4) 3   (5) None of these

22. $(8)^2 + (9)^2 + (4)^2 = ?$
(1) 221   (2) 441   (3) 201
(4) 159   (5) None of these

23. ?% of 84 = 10.08
(1) 11   (2) 10   (3) 14
(4) 12   (5) None of these

24. 20% of 50 + 30% of 40 = ?
(1) 15   (2) 18   (3) 22
(4) 20   (5) None of these

25. $6x^2 + 4 = 868$; x = ?
(1) 34   (2) 12   (3) 56
(4) 14   (5) 79

26. One-third of three-fourth of a number is 30. What is the number?
(1) 90   (2) 80   (3) 150
(4) 60   (5) None of these

27. With a growth rate of 8% per annum, what will be the production of a company in 2002, if the production in 2000 is 17000?
  (1) 19720   (2) 19828.8   (3) 18360
  (4) Cannot be determined   (5) None of these

28. A train running at speed of 90 km/hour crosses a platform double its length in 36 seconds. What is the length of the platform in metres?
  (1) 450   (2) 200   (3) 300
  (4) Cannot be determined   (5) None of these

29. In the following number series, one number is **wrong**. Which is the **wrong** number?
  11   13   19   26   35   46   59
  (1) 19   (2) 46   (3) 13
  (4) 35   (5) 26

30. A sum of money is to be divided among Z, X, Y in the respective proportion of 4 : 5 : 6 and another sum to be divided between A and B equally. If Z got Rs 2,000/- less than A, how much did X get?
  (1) Rs 10,000   (2) Rs 5,000   (3) Rs 4,000
  (4) Cannot be determined   (5) None of these

31. If two-third of one-fourth of one-third of a number is 6, what is the number?
  (1) 108   (2) 144   (3) 96
  (4) 78   (5) None of these

32. A sum of money fetches Rs 240 as simple interest at the rate of 5 p.c.p.a. after 6 years. What is the principle amount?
  (1) Rs 200   (2) Rs 400   (3) Rs 800
  (4) Rs 1200   (5) None of these

33. An amount of money is to be distributed among P, Q and R in the ratio of 3 : 5 : 6. If R gets Rs 400 more than Q, what is the difference between P's and Q's share?
  (1) Rs 1,200   (2) Rs 800   (3) Rs 1,600
  (4) Data inadequate   (5) None of these

34. If 20 per cent of a number is 12, what will be two-third of that number?
  (1) 40   (2) 20   (3) 80
  (4) 60   (5) None of these

35. Prabir is four years older to Jayesh at present. After four years the ratio of their ages will be 3 : 2. What is Jayesh's age at present?
  (1) 8 years   (2) 4 years   (3) 6 years
  (4) Data inadequate   (5) None of these

36. The area of a rectangle is 20 times its breadth. The perimeter of the rectangle is 76 cms. What is the length of the rectangle?
  (1) 40 cms   (2) 36 cms   (3) 18 cms
  (4) Data inadequate   (5) None of these

37. Sixteen men can complete a work in twelve days. In how many days will twenty-four men complete the same work?
  (1) 4   (2) 8   (3) 6
  (4) 3   (5) None of these

38. Amit purchased a book with a 10% discount on the labelled price. How much did he pay if the labelled price was Rs 600?
  (1) Rs 480   (2) Rs 360   (3) Rs 540
  (4) Rs 340   (5) None of these

39. The price of two tables and three chairs is Rs 5,600. What will be the price of six tables and nine chairs?
  (1) Rs 16,800   (2) Rs 11,200   (3) Rs 22,400
  (4) Data inadequate   (5) None of these

40. The average age of 24 boys in a class is 11. When the teacher's age is included, the average increases by one. What is the age of the teacher?
  (1) 34 years   (2) 42 years   (3) 36 years
  (4) 48 years   (5) None of these

41. A shopkeeper sold some articles @ Rs 35 per article and earned a profit of 40%. At what price each article should have been sold so that 60% profit was earned?
  (1) Rs 45   (2) Rs 42   (3) Rs 39
  (4) Rs 40   (5) None of these

42. The present ages of Sunil and Anil are in the ratio of 7 : 8 respectively. If four years ago, the ratio of their ages was 5 : 6 respectively, what is Anil's present age in years?
  (1) 16   (2) 14   (3) 10
  (4) 12   (5) None of these

43. If the length and breadth of a rectangular field are increased, the area increases by 50%. If the increase in length was 20%, by what percentage was the breadth increased?
  (1) 30%   (2) 25%   (3) 20%
  (4) Data inadequate   (5) None of these

44. Surjeet Singh's salary is 80% of Ranjeet's salary and 120% of Latika's salary. What is Surjeet Singh's salary if Ranjeet's salary is Rs 15000?
  (1) Rs 10,000   (2) Rs 18,000
  (3) Rs 12,500   (4) Rs 10,500
  (5) None of these

45. If a number is reduced by 40% it becomes two-third of another number. What is the ratio of the first number to the second number?
  (1) 10 : 9   (2) 8 : 9   (3) 9 : 8
  (4) 9 : 10   (5) None of these

46. What is the **approximate** value of .
  $$\frac{399.99}{798.87} \times 199.87 ?$$
  (1) 90   (2) 70   (3) 100
  (4) 80   (5) 110

47. By selling a book for Rs 270, 20% profit was earned. What is the cost price of the book?
  (1) Rs 216   (2) Rs 226   (3) Rs 254
  (4) Rs 225   (5) None of these

48. If the price of silver is Rs 3,810 per 100 gms, what will be the **approximate** value of 15.7 gm?
  (1) Rs 900   (2) Rs 65   (3) Rs 6,000
  (4) Rs 600   (5) Rs 750

49. The area of a rectangular field is 2100 sq metres. If the field is 60 metres long, what is its

perimeter?

(1) 180 metres   (2) 200 metres

(3) 240 metres   (4) Cannot be determined

(5) None of these

50. The mean of five consecutive numbers is 7. Which is the highest number?

(1) 8   (2) 10

(3) 7   (4) Cannot be determined

(5) None of these

ANSWERS AND EXPLANATIONS

1. (2) **Multiplying each term by 6 and then adding 1, we get the next term**
   $\therefore$ Reqd. no. $= 691 \times 6 + 1 = 4147$

2. (3) **Each term is twice the preceding term**
   $\therefore$ Reqd. no. $= 40$

3. (5) **Adding 1, 3, 5, 7, 9 ...to get the next term**
   $\therefore$ Reqd. no. $= 26 + 9 = 35$

4. (4) **Subtract 2 from the term and then divide the diff. by 2 to get the next term**
   $$\frac{1598 - 2}{2} = 798$$
   $$\frac{798 - 2}{2} = 398$$
   $$\frac{398 - 2}{2} = 198$$
   $$\frac{198 - 2}{2} = 98$$

5. (5) **All are multiples of 5.** Reqd. no. $= 30$
   $5 \times 1, 5 \times 2, 5 \times 3, 5 \times 4, 5 \times 5, 5 \times 6 = 30$

6. (4) $\sqrt{25 + 24} = \sqrt{49} = 7$

7. (1) $\frac{1}{5}$ of $\frac{1}{2}$ of $\frac{1}{3}$ of $x = 19$
   $\Rightarrow x = 19 \times 5 \times 2 \times 3 = 570$

8. (3)

12. (2)

16. (3)

20. (1)

24. (3)

25. (2) $x^2 = \frac{868 - 4}{6} = 144 \Rightarrow x = 12$

26. (5) $\frac{1}{3}$ of $\frac{3}{4}$ of $x = 30 \Rightarrow x = 30 \times \frac{3}{1} \times \frac{4}{3} = 120$

27. (2) Reqd. production $= 17000 \left(1 + \frac{8}{100}\right)^2$
    $= 19828.8$

28. (5) $x + 2x = \left(90 \times \frac{5}{18}\right) \times 36$ $D = S \times T$
    $\Rightarrow x = 300$
    Length of platform $= 2x = 600$ m

29. (3) **Adding 3, 5, 7, 9, 11, 13, we get the next no.**
    $11 + 3 = 14.$ 13 is wrong, it should be 14

30. (4)

31. (1) No. $= 6 \times \frac{3}{2} \times \frac{4}{1} \times \frac{3}{1} = 108$

32. (3) $P = \frac{I \times 100}{R \times T} = \frac{240 \times 100}{5 \times 6} = $ Rs 800

33. (2) **Let the shares of P., Q & R be Rs 3x, 5x, 6x**
    A.T.S. $6x - 5x = 400$
    $x = 400$
    Reqd. diff. $= 5x - 3x = 2x = $ Rs 800

34. (1) $\frac{20}{100} x = 12 \Rightarrow x = 60$
    $\frac{2}{3} x = \frac{2}{3} \times 60 = 40$

35. (2) **Let Jayesh's present age be x yrs**
    $\therefore$ **Prabir's present age** $= 4 + x$ yrs
    A.T.S. $\frac{x + 4 + 4}{x + 4} = \frac{3}{2} \Rightarrow x = 4$

36. (5) A (rect.)$= L \times B = 20B \Rightarrow L = 20$

37. (2) **Reqd no. of days** $= \frac{16 \times 12}{24} = 8$ days
    (It's a question of Inverse Variation)

38. (3) $SP = M.P. \times \frac{(100 - D\%)}{100} = 600 \times \frac{(100 - 10)}{100}$
    $= $ Rs 540

39. (1) $2x + 3y = 5600] \times 3$
    $6x + 9y = 16800$ $x = $ Cost of 1 table
                        $y = $ Cost of 1 chair

40. (3) **Age of teacher** $= 25 \times 12 - 24 \times 11 = 36$ yrs

41. (4) **Reqd. price** $= 35 \times \frac{100}{140} \times \frac{160}{100} = $ Rs 40

42. (1) $\frac{7x - 4}{8x - 4} = \frac{5}{6} \Rightarrow x = 2$
    $\therefore$ **Anil's present age** $= 8x = 16$ yrs

43. (2) **New area**
    $= \frac{120}{100} L \times \frac{(100 + x)}{100} B = \frac{150}{100} LB \Rightarrow x = 25$

44. (5) **Surjeet's salary** $= \frac{80}{100} \times 15000 = $ Rs 12000

45. (1) $\frac{60}{100} x = \frac{2}{3} y \Rightarrow \frac{x}{y} = \frac{10}{9}$

46. (3) $\frac{400}{800} \times 200 = 100$ (approx.)

47. (4) C.P. $= 270 \times \frac{100}{120} = $ Rs 225

48. (4)

49. (5) $B = \frac{\text{Area of a rect}}{L} = \frac{2100}{60} = 35$m
    $P = 2(L + B) = 2(60 + 35) = 190$ m

50. (5) $\frac{x + (x + 1) + (x + 2) + (x + 3) + (x + 4)}{5} = 7$
    $\Rightarrow x = 5$
    Highest no. $= x + 4 = 5 + 4 = 9$

Mathematics Section – Part 4

Q. 1-5. What should come in place of question mark (?) in the following questions?

1. 92.5% of 550 = ?
(1) 506.45   (2) 521.65
(3) 518.55   (4) 508.75
(5) None of these

2. $12^4 \times 12^{13} = ?$
(1) 12^7 (2) 12^{39} (3) 12^{17}
(4) 12^{-7} (4) None of these

3. 12.22 + 22.21 + 221.12?
(1) 250.55   (2) 255.50
(3) 250.05   (4) 255.05
(5) None of these

4. $464 \div (16 \times 2.32) = ?$
(1) 12.5   (2) 14.5
(3) 10.5   (4) 8.5
(5) None of these

5. $78 \div 5 \div 0.5 = ?$
(1) 15.6   (2) 31.2
(3) 7.8   (4) 20.4
(5) None of these

6. A bus covers a distance of 2,924 kms. in 43 hours. What is the speed of the bus?
(1) 72 kms/hr   (2) 60 kms/hr   (3) 68 kms/hr
(4) Cannot be determined
(5) None of these

7. If $(9)^3$ is subtracted from the square of a number, the answer so obtained is 567. What is the number?
(1) 36   (2) 28   (3) 42
(4) 48   (5) None of these

8. What would be the simple interest obtained on an amount of Rs 5,760 at the rate of 6 p.c.p.a. after 3 years?
(1) Rs 1,036.80   (2) Rs 1,666.80   (3) Rs 1,336.80
(4) Rs 1,063.80   (5) None of these

9. What is 333 times 131?
(1) 46,323   (2) 43,623   (3) 43,290
(4) 42,957   (5) None of these

10. The product of two successive numbers is 8556. What is the smaller number?
(1) 89   (2) 94   (3) 90
(4) 92   (5) None of these

11. The owner of an electronics shop charges his customer 22% more than the cost price. If a customer paid Rs 10,980 for a DVD Player, then what was the cost price of the DVD Player?
(1) Rs 8,000   (2) Rs 8,800   (3) Rs 9,500
(4) Rs 9,200   (5) None of these

12. What would be the compound interest obtained on an amount of Rs 3,000 at the rate of 8 p.c.p.a after 2 years?
(1) Rs 501.50   (2) Rs 499.20   (3) Rs 495
(4) Rs 510   (5) None of these

13. What is the least number to be added to 4321 to make it a perfect square?
(1) 32   (2) 34   (3) 36
(4) 38   (5) None of these

14. 45% of a number is 255.6. What is 25% of that number?
(1) 162   (2) 132   (3) 152
(4) 142   (5) None of these

15. Find the average of the following Set of Scores:
221, 231, 441, 359, 665, 525
(1) 399   (2) 428   (3) 407
(4) 415   (5) None of these

16. If $(78)^2$ is subtracted from the square of the number, the answer so obtained is 6,460. What is the number?
(1) 109   (2) 111   (3) 113
(4) 115   (5) None of these

17. In an examination it is required to get 40% of the aggregate marks to pass. A student gets 261 marks and is declared failed by 4% marks. What are the maximum aggregate marks a student can get?
(1) 700   (2) 730   (3) 745
(4) 765   (5) None of these

18. Pinku, Rinku and Tinku divide an amount of Rs 4,200 amongst themselves in the ratio of 7 : 8 : 6 respectively. If an amount of Rs 200 is added to each of their shares, what will be the new respective ratio of their shares of amount?
(1) 8 : 9 : 6   (2) 7 : 9 : 5   (3) 7 : 8 : 6
(4) 8 : 9 : 7   (5) None of these

19. Ms Suchi deposits an amount of Rs 24,000 to obtain a simple interest at the rate of 14 p.c.p.a. for 8 years. What total amount will Ms Suchi get at the end of 8 years?
(1) Rs 52,080   (2) Rs 28,000   (3) Rs 50,880
(4) Rs 26,880   (5) None of these

20. The average of 5 consecutive even numbers A, B, C, D and E is 52. What is the product of B and E?

(1) 2912   (2) 2688   (3) 3024
(4) 2800   (5) None of these

21. The difference between 42% of a number and 28% of the same number is 210. What is 59% of that number?

(1) 630   (2) 885   (3) 420
(4) 900   (5) None of these

22. What **approximate** value should come in place of the question mark (?) in the following question?

$4275 \div 496 \times (21)^2 = ?$

(1) 3795   (2) 3800   (3) 3810
(4) 3875   (5) 3995

23. A canteen requires 112 kgs of wheat for a week. How many kgs of wheat will it require for 69 days?

(1) 1,204 kgs   (2) 1,401 kgs   (3) 1,104 kgs
(4) 1,014 kgs   (5) None of these

24. If an amount of Rs 41,910 is distributed equally amongst 22 persons. How much amount would each person get?

(1) Rs 1,905   (2) Rs 2,000   (3) Rs 1,885
(4) Rs 2,105   (5) None of these

25. The cost of 4 Cell-phones and 7 Digital cameras is Rs 1,25,627. What is the cost of 8 Cell-phones and 14 Digital cameras?

(1) Rs 2,51,254 (2) Rs 2,52,627 (3) 2,25,524
(4) Cannot be determined
(5) None of these

Q. 26-30. Each of the questions below consists of a question and two statements numbered I and II are 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:

(1) 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.

(2) 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.

(3) if the data in Statement I alone or in Statement II alone are sufficient to answer the question.

(4) if the data in both the Statements I and II are not sufficient to answer the question.

(5) if the data in both the Statements I and II together are necessary to answer the question.

26. What is the area of the circle?
  I. Perimeter of the circle is 88 cms.
  II. Diameter of the circle is 28 cms.

27. What is the rate of interest?
  I. Simple interest accrued on an amount of Rs 25,000 in two years is less than the compound interest for the same period by Rs 250.
  II. Simple interest accrued in 10 years is equal to the principal.

28. What is the number of trees planted in the field in rows and columns?
  I. Number of columns is more than the number of rows by 4.
  II. Number of trees in each column is an even number.

29. What is the area of the right-angled triangle?
  I. Height of the triangle is three-fourth of the base.
  II. Diagonal of the triangle is 5 metres.

30. What is the father's present age?
  I. Father's present age is five times the son's present age.
  II. Five years ago the father's age was fifteen times the son's age that time.

Q. 31-35. Study the following graph carefully to answer these questions:

Profit earned (in Crore Rs) by Seven Companies during 2003-2004
Profit = Income − Expenditure
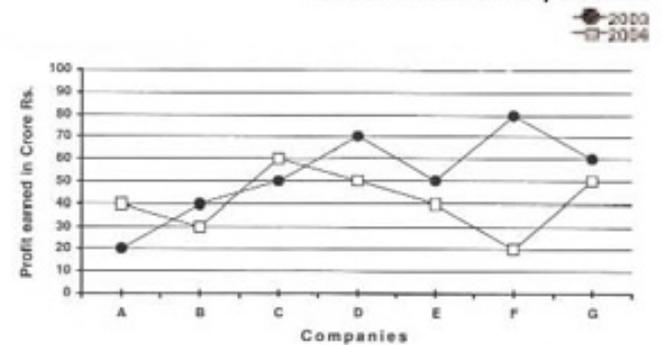
31. What is the ratio between the profit earned by Company A in 2004 and the profit earned by Company B in 2003 respectively?

(1) 4 : 3   (2) 3 : 2   (3) 3 : 4
(4) 2 : 3   (5) None of these

32. What is the difference (in Crore Rs) between the total profit earned by Companies E, F and G together in 2003 and the total profit earned by these companies in 2004?

(1) 70   (2) 75   (3) 78
(4) 82   (5) None of these

33. What is the ratio between the total profit earned by Company C in 2003 and 2004 together and the total profit earned by Company E in these two years respectively?

(1) 11 : 9   (2) 9 : 10   (3) 10 : 11
(4) 11 : 10   (5) None of these

34. What was the average profit earned by all the companies in 2003? (In Crore Rs Rounded-Off to two digits after decimal).

(1) 52.75   (2) 53.86   (3) 52.86

(4) 53.75   (5) None of these

35. Profit earned by Company B in 2004 is what per cent of the profit earned by the same company in 2003?

(1) 133.33   (2) 75   (3) 67.66
(4) 75.25   (5) None of these

Q. 36-40. Study the following table carefully to answer these questions:

TABLE GIVING PERCENTAGE OF UNEMPLOYED MALE AND FEMALE YOUTH AND THE TOTAL POPULATION FOR DIFFERENT STATES IN 2005 AND 2006

	2005			2006		
STATE	M	F	T	M	F	T
A	12	15	32	7	8	35
B	8	7	18	10	9	20
C	9	10	28	10	12	34
D	10	6	24	8	8	30
E	6	8	30	7	6	32
F	7	5	28	8	7	35

M = Percentage of unemployed Male youth over total population

F = Percentage of unemployed Female youth over total population

T = Total population of the State in lakhs

36. What was the total number of unemployed youth in State A in 2006?

(1) 2,20,000   (2) 3,25,000
(3) 5,20,000   (4) 5,25,000
(5) None of these

37. How many female youth were unemployed in State D in 2005?

(1) 14,400   (2) 1,44,000
(3) 1,40,000   (4) 14,000
(5) None of these

38. Number of unemployed male youth in State A in 2005 was what per cent of the number of unemployed female youth in State E in 2006?

(1) 66   (2) 50   (3) 200
(4) 133   (5) None of these

39. What was the difference between the number of unemployed male youth in State F in 2005 and the number of unemployed male youth in State A in 2006?

(1) 70,000   (2) 45,000
(3) 68,000   (4) 65,000
(5) None of these

40. What was the respective ratio between unemployed male youth in State D in 2005 and the unemployed male youth in State D in 2006?

(1) 1 : 1   (2) 2 : 3   (3) 3 : 2
(4) 4 : 5   (5) None of these

ANSWERS AND EXPLANATIONS

1. (4)
2. (3)
3. (5) Ans. 255.55
4. (1)
5. (2)
6. (3) $Speed = \dfrac{D}{t}$
7. (1) $x^2 - 9^3 = 567 \Rightarrow x = 36$
8. (1) $S.I. = \dfrac{5760 \times 6 \times 3}{100} = Rs1036.80$
9. (2) Ans. 43623
10. (4) $x(x+1) = 8556 \Rightarrow x = 92$
11. (5) $\dfrac{122}{100}x = 10980 \Rightarrow x = Rs\,9000$
12. (2) $C.I. = P\left[\left(1 + \dfrac{R}{100}\right)^n - 1\right]$
$$= 3000\left[\left(1 + \dfrac{8}{100}\right)^2 - 1\right] = Rs\,499.20$$
13. (5)

```
            65
     6 | 4321
         36              65² < 4321 < 66²
   125 | 721            Reqd. no. = 66² − 4321 = 35
         625
          96
```

14. (4) $\dfrac{45}{100}$ of $x = 255.6 \Rightarrow x = 255.6 \times \dfrac{100}{45}$
$\therefore \dfrac{25}{100} \times 255.6 \times \dfrac{100}{45} = 142$
15. (3)
16. (5) $x^2 - 78^2 = 6460 \Rightarrow x = 112$
17. (5) $\dfrac{40}{100}x = 261 + \dfrac{4}{100}x \Rightarrow x = 725$
18. (4) Shares of Pinku, Rinku and Tinku in
Rs 4200 are $\dfrac{7}{7+8+6} \times 4200, \dfrac{8}{21} \times 4200,$
$\dfrac{6}{21} \times 4200$ i.e. 1400, Rs 1600, Rs 1200
Reqd. ratio
$= (1400 + 200) : (1600 + 200) : (1200 + 200)$
$= 8 : 9 : 7$
19. (3) Total Amount
$= Rs\,24000 + \dfrac{24000 \times 14 \times 8}{100} = Rs\,50880$
20. (4) $A + B + C + D + E$
$x + (x+2) + (x+4) + (x+6) + (x+8)$
$= 5 \times 52 \Rightarrow x = 48 = A, B = 50$
$\therefore E = 48 + 8 = 56$
$\therefore BE = 50 \times 56 = 2800$

21. (2) $(42 - 28)\%$ of $x = 210 \Rightarrow x = 210 \times \dfrac{100}{14}$

$$= 1500$$

$$\therefore \dfrac{59}{100} \times 15 = 885$$

22. (2) Use BODMAS

23. (3) $\dfrac{112}{7} \times 69 = 1104 \text{ kg}$

$$= \text{Reqd. quantity of wheat}$$

24. (1)

25. (1) $4x + 7y = 125627 \rbrack \times 2$

$$\therefore 8x + 14y = 251254$$

26. (3) $2\pi r = 88 \Rightarrow r = \dfrac{88}{2\pi}$

$r = \dfrac{D}{2} = \dfrac{28}{2} = 14$

Either (i) or (ii) is reqd.

$A = \pi r^2$

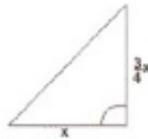27. (3) $250 = 25000 \left[(1 + R)^2 - 1 \right] - 25000 \times R \times 2$

or $R = \dfrac{x \times 100}{x \times 10} = 10\%$

From either of statement we can find R

28. (4)

29. (5) $x^2 + \left(\dfrac{3}{4}x \right)^2 = 5^2 \Rightarrow x = 4,$

$h = \dfrac{3}{4} \times 4 = 3$

Area $= \dfrac{1}{2} \left(x \times \dfrac{3}{4}x \right) = \dfrac{1}{2} (4 \times 3) = 6$ sq. units

Both (i) and (ii) statements are reqd.

30. (5) Let son's present age be x

$\therefore$ Father's present age $= 5x$

ATS $5x - 5 = 15 (x - 5) \Rightarrow x = 7$

$\therefore$ Father's present age $= 35$ yrs

31. (5) $\dfrac{40}{40} = \dfrac{1}{1}$

32. (5) Diff $= (50 + 80 + 60) - (40 + 20 + 50) = 80$

33. (1) Reqd ratio $= \dfrac{50 + 60}{40 + 50} = \dfrac{11}{9}$

34. (3)

35. (2) $30 = x\%$ of $40 \Rightarrow x = 75$

36. (4)

37. (2)

38. (3)

39. (5) Ans 49000

40. (1) $\dfrac{\dfrac{10 \times 24}{100}}{\dfrac{8 \times 30}{100}} = 1 : 1$

Mathematics Section – Part 5

Q. 1-24. What should come in place of the question mark (?) in the following questions?

1. 2827 + 3285 + 5025 = ?
(1) 10137   (2) 11137   (3) 10187
(4) 11257   (5) None of these

2. 2860 − 1320 − 1259 = ?
(1) 271   (2) 251   (3) 261
(4) 281   (5) None of these

3. 539 × 627 = ?
(1) 330953   (2) 337953   (3) 338953
(4) 327953   (5) None of these

4. 754 ÷ 26 = ?
(1) 29   (2) 28   (3) 27
(4) 26   (5) None of these

5. 876.23 + 729.49 = ?
(1) 1600.72   (2) 1505.22   (3) 1605.72
(4) 1402.22   (5) None of these

6. 436.729 − 211.116 − 107.102 = ?
(1) 108.411   (2) 218.501   (3) 117.412
(4) 118.511   (5) None of these

7. 6.5 × 7.5 × 8.5 = ?
(1) 414.375   (2) 415.375   (3) 413.475
(4) 414.015   (5) None of these

8. $\dfrac{350 \times 25}{8 \times 2.5} = ?$
(1) 437.5   (2) 8750   (3) 1093.75
(4) 364.5   (5) None of these

9. 287.35 + 398.69 = 395.02 + ?
(1) 292.02   (2) 291.02   (3) 293.02
(4) 290.62   (5) None of these

10. 5 × ? = 23.5
(1) 4.8   (2) 4.7   (3) 4.85
(4) 4.65   (5) None of these

11. 1012 + 1084 = ? × 25
(1) 84.84   (2) 82.84   (3) 83.84
(4) 82.74   (5) None of these

12. 628 ÷ ? = 125.6
(1) 5   (2) 3   (3) 4.8
(4) 2.5   (5) None of these

13. ? × 19 = 4750
(1) 25   (2) 2500   (3) 270
(4) 250   (5) None of these

14. $\dfrac{15 \times 15 \times 15}{5 \times 3 \times 2} = ?$
(1) 15   (2) 60   (3) 225
(4) 112.5   (5) None of these

15. 125 + 265 × 9 = ?
(1) 2510   (2) 3510   (3) 399
(4) 298.125   (5) None of these

16. 361 ÷ 19 + 11 = ?
(1) 20   (2) 29   (3) 27
(4) 31   (5) None of these

17. $\dfrac{2}{5}$ of 350 + 30% of 250 = ?
(1) 115   (2) 215   (3) 225
(4) 125   (5) None of these

18. $\dfrac{4}{5}$ of 460 + $\dfrac{3}{4}$ of 220 = ?
(1) 530   (2) 533   (3) 532
(4) 534   (5) None of these

19. $\dfrac{2}{5} + \dfrac{3}{13} + \dfrac{4}{13} = ?$
(1) $\dfrac{61}{65}$ (2) $\dfrac{9}{13}$ (3) $\dfrac{9}{31}$
(4) $\dfrac{31}{61}$ (5) None of these

20. $65 + \sqrt{?} = 83$
(1) 334   (2) 224   (3) 324
(4) 254   (5) None of these

21. $\sqrt{225} + \sqrt{256} = ?$
(1) 15   (2) 16   (3) 240
(4) 41   (5) None of these

22. $\sqrt{?} - 44 = 25$
(1) 4671   (2) 4771   (3) 1100
(4) 2200   (5) None of these

23. $\dfrac{(16)^2 + 152 \div 4}{15} = ?$
(1) 18.6   (2) 18.5   (3) 19.6
(4) 19.7   (5) None of these

24. $13\dfrac{3}{4} + 16\dfrac{1}{4} + 7\dfrac{1}{2} = ?$
(1) 35   (2) 25   (3) $30\dfrac{1}{2}$
(4) $35\dfrac{1}{2}$ (5) None of these

25. In the following series a **wrong** number is

given. Find out the one.

   15 31 46 63 79 95

(1) 15   (2) 31   (3) 46

(4) 63   (5) 79

26. The sum of three consecutive integers is 30. Which of the following is the largest among the three?

(1) 12   (2) 13   (3) 14

(4) 10   (5) None of these

27. Each student of a class of 45 students has to be given 2 pens and 3 pencils. If the price of a pencil is Re 1 and that of a pen is Rs 4, then what will be the total price of the pens and pencils for the whole class?

(1) Rs 485   (2) Rs 490   (3) Rs 495

(4) Rs 395   (5) None of these

28. Ram mixes 15 kg of sugar purchased at the rate of Rs 8.00 per kg with 25 kg of sugar purchased at the rate of Rs 10.00 per kg. At what rate per kg should Ram sell the mixture to get a profit of Rs 3 per kg?

(1) Rs 11.00   (2) Rs 11.25   (3) Rs 12.25

(4) Rs 12.50   (5) None of these

29. When the present age of mother is added to the present age of the daughter, the total is 40 years. What will be their total age in years after 5 years?

(1) 45   (2) 50   (3) 40

(4) 55   (5) None of these

30. In a library 30% books are in English, 50% books are in Hindi and the remaining 500 are in other languages. What is the total number of books in the library?

(1) 2700   (2) 2750   (3) 2555

(4) 2500   (5) None of these

31. The average age of a brother and sister was 35 years 5 years ago. What will be their average age at present?

(1) 37.5   (2) 42   (3) 80

(4) 40.5   (5) None of these

32. What will be the cost of 9 VCD sets if 5 such sets cost Rs 15,500?

(1) Rs 26,800   (2) Rs 27,800   (3) Rs 27,900

(4) Rs 27,500   (5) None of these

33. Which is the highest of the following fractions?

(1) $\dfrac{2}{7}$ (2) $\dfrac{3}{5}$ (3) $\dfrac{5}{8}$

(4) $\dfrac{7}{9}$ (5) $\dfrac{2}{3}$

34. If the difference between a number and $\dfrac{1}{5}$ of it is 24, then what is the number?

(1) 34   (2) 33   (3) 40

(4) 28   (5) None of these

35. 5 tables and 6 chairs cost Rs 2,500 and 3 tables and 2 chairs cost Rs 1,300. What is the cost of one table and one chair together?

(1) Rs 845   (2) Rs 475   (3) Rs 755

(4) Rs 635   (5) None of these

36. Ram's present age is one-sixth of his father's present age. If the difference between their present ages is 35 years, what is his father's present age?

(1) 32 years   (2) 42 years   (3) 52 years

(4) 44 years   (5) None of these

37. Rani bought a piece of cloth for Rs 950 and spent Rs 300 on designing it. At what price should she sell it to make 30% profit?

(1) Rs 1,650   (2) Rs 1,550   (3) Rs 1,525

(4) Rs 1,625   (5) None of these

38. The ratio of the length and breadth of a rectangular plot is 4 : 3 respectively. The perimeter of the plot is 28 metres. What is the length of the plot in metres?

(1) 20   (2) 12   (3) 16

(4) 14   (5) None of these

39. In a class 20% students failed, 60% students secured average marks and the remaining students scored above average marks. How many students are there in the class?

(1) 25   (2) 20   (3) 30

(4) Cannot be determined

(5) None of these

40. The ratio of length and breadth of a rectangle is 5 : 2 respectively. The respective ratio of its perimeter and area is 1 : 3 (irrespective of the unit). What is the length of the rectangle?

(1) 27 units   (2) 32 units   (3) 21 units

(4) Cannot be determined

(5) None of these

41. In a garden, the ratio of the number of coconut trees to that of mango trees is 5 : 6 respectively, If the total number of trees is 121, then how many coconut trees are there in the garden?

(1) 50   (2) 45   (3) 56

(4) 55   (5) None of these

42. Price of 250 gms of mangoes is Rs 7.50. What is the price of 5 kgs of mangoes?

(1) Rs 120   (2) Rs 135   (3) Rs 150

(4) Rs 145   (5) None of these

43. A series of numbers is given below. Which number should come in place of the question mark (?) ?

  6 36 216 1296 ?

(1) 1596   (2) 7016   (3) 7676

(4) 8776   (5) None of these

44. The average age of Ram, Hari and Gopal is 42 years. If their ages are in the proportion of 2 : 3 : 4 respectively, what is the age of Hari in years?

(1) 28   (2) 42   (3) 56

(4) 14   (5) None of these

45. The ratio of girls and boys in a school is 3 : 7. The number of boys is more by 400 than that of girls. What is the number of boys in the school?

(1) 300   (2) 700   (3) 100

(4) 500   (5) None of these

46. An apple costs Rs 1.75 and an orange costs Rs 1.50. What will be the cost of 3 dozens of apples and 2 dozens of oranges?

(1) Rs 99   (2) Rs 63   (3) Rs 36
(4) Rs 100   (5) None of these

47. The sum of 3 consecutive even numbers is 198. Which of the following will be the smallest number among them?

(1) 42   (2) 38   (3) 32
(4) 72   (5) None of these

48. $\dfrac{12}{?} = \dfrac{?}{27}$

(1) 162   (2) 164   (3) 18
(4) 16   (5) None of these

49. 15 persons completed a job in 7 days. How many days will 10 persons take to complete the job?

(1) 10   (2) $11\dfrac{1}{2}$ (3) $9\dfrac{1}{2}$
(4) $10\dfrac{1}{2}$ (5) None of these

50. Two-third of half of a number is 18. What is one third of that number?

(1) 18   (2) 16   (3) 19
(4) 17   (5) None of these

ANSWERS AND EXPLANATIONS

1. (2)	2. (4)	3. (2)	4. (1)
5. (3)	6. (4)	7. (1)	8. (1)
9. (2)	10. (2)	11. (3)	12. (1)
13. (4)	14. (4)	15. (1)	
16. (5) Ans 30		17. (2)	18. (2)

19. (1)
20. (3)
21. (5) Ans 31
22. (5) Ans 4761
23. (3)
24. (5) Ans $37\dfrac{1}{2}$

25. (3) 15, 31, 46, 63, 79, 95
    $15 \times 2 + 1 = 3$, $15 \times 3 + 2 = 47$,
    $15 \times 4 + 3 = 63$, $15 \times 5 + 4 = 79$,
    $15 \times 6 + 5 = 95$
    46 is wrong, it should be 47.

26. (5) $x + x + 1 + x + 2 = 30 \Rightarrow x = 9$
    Largest $= x + 2 = 11$

27. (3) $45 (2 \times 4 + 3 \times 1) = 495$

28. (3) S.P./kg $= \dfrac{15 \times 8 + 25 \times 10 + 3(15 + 25)}{15 + 25}$
        $= $ Rs 12.25

29. (2) $40 + 5 + 5 = 50$ years

30. (4) $[100 - (30 + 50)]\%$ of $x = 500 \Rightarrow x = 2500$

31. (5) $35 + 5 = 40$

or $\dfrac{35 \times 2 + 5 + 5}{2} = 40$

32. (3) $15500 \times \dfrac{9}{5} = 27900$

33. (4)

34. (5) $x - \dfrac{x}{5} = 24 \Rightarrow x = 30$

35. (2) $5x + 6y = 2500$ (x = Cost of a table
     $3x + 2y = 1300$ y = Cost of a chair)
     Solving the equations, we get $x = 350$,
     $y = 125$, $x + y = 475$

36. (2) Let father's present age be x years
     $\therefore$ Ram's present age $= \dfrac{x}{6}$ years
     A.T.S. $x - \dfrac{x}{6} = 35 \Rightarrow x = 42$ years

37. (4) S.P. $= \dfrac{\text{C.P.} \times (100 + \text{P\%})}{100}$
        $= \dfrac{(950 + 300) \times (100 + 30)}{100}$
        $= $ Rs 1625

38. (5) $2(4x + 3x) = 28 \Rightarrow x = 2$
     $\therefore$ Length $= 4x = 8$m

39. (4)

40. (3) $\dfrac{P}{A} = \dfrac{2(L + B)}{L \times B} = \dfrac{2(5x + 2x)}{5x \times 2x} = \dfrac{1}{3}$
     $\Rightarrow x = \dfrac{21}{5}$
     $\therefore$ L. $= 5x = 21$ units

41. (4) $5x + 6x = 121 \Rightarrow x = 11$
     Coconut trees $= 55$

42. (3) $7.50 \times 5 \times \dfrac{1000}{250} = $ Rs 150

43. (5) $6, 36, 216, 1296$
     $\therefore$ The series is $6^1, 6^2, 6^3, 6^4$
     $\therefore$ Next term $= 6^5 = 7776$

44. (2) $2x + 3x + 4x = 3 \times 42 \Rightarrow x = 14$
     Hari's age $= 3x = 42$ years

45. (2) $7x - 3x = 400 \Rightarrow x = 100$
     $\therefore$ No. of boys $= 7x = 700$

46. (1) Cost $= (3 \times 12) \times 1.75 + 2 \times 12 \times 1.50$
        $= $ Rs 99

47. (5) $x + (x + 2) + (x + 4) = 198 \Rightarrow x = 64$

48. (3) $x = \sqrt{12 \times 27} = 18$

49. (4) No. of days $= \dfrac{15 \times 7}{10} = 10\dfrac{1}{2}$

50. (1) $\dfrac{2}{3} \times \dfrac{1}{2} \times x = 18 \Rightarrow \dfrac{x}{3} = 18$