Day - 5

Module - 5

Test of

Quantitative Aptitude/ Data Analysis & Interpretation

Quantitative Aptitude/ Data Analysis and Interpretation

This test measures candidates' ability to (1) solve simple arithmetical computation problems with speed and accuracy, (2) solve some problems involving arithmetical reasoning and (3) analyse and interpret data represented in the form of tables and graphs etc. The simple arithmetic problems involve basic operations like addition, subtraction, multiplication, division, percentage, squares, and square routes with whole numbers as well as fractions and decimals. The problems involving arithmetical reasoning may be based on averages, ratio-proportion, interest (simple, compound), number series etc.

All these arithmetical operations are included in the middle school or at best in the high school syllabus. You may refer to these books for revising your knowledge. Questions which require use of complex formulas, higher algebraic knowledge etc. are not included. More emphasis is laid on arithmetical reasoning.

The types of questions are only illustrative and not exhaustive. In actual test you may find questions on some or all these types and also questions on the type not mentioned here.

Q.1-15. What **approximate** value should come in place of the question mark (?) in the following questions? (Note: you are not expected to work out the exact value).

Q.1 11004.01 – 191.30 + 562.80 = ?

1) 21376
2) 11476
3) 11376
4) 11250
5) None of these given as options

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questions? (Note: you are not expected to work out the exact value).

Q.1 $11004.01 - 191.30 + 562.80 = ?$

1) 21376
2) 11476
3) **11376**
4) 11250
5) None of those given as options

Q.2 $\frac{3}{8}$ of $4800.40 = ?$

1) 12800
2) 180
3) 600
4) 1600
5) None of those given as options

Q.3 $22559.70 \div 1.5 = ?$

1) 1540
2) 15400
3) 154
4) 15040
5) None of those given as options

Q.4 $0.65 \times ? = 0.6565$

1) 2
2) 3
3) 4
4) 1
5) None of those given as options

Q.5 $170.90 \div 18.80 \times 8.70 = ?$

1) 1
2) 18
3) 81
4) 0
5) None of those given as options

Q.6 $218.41 - 149.26 = ?$

1) 69
2) 79
3) 179
4) 169
5) None of those given as options

Q.7 $10.375 + 19.777 + 12.75 = ?$

1) 65
2) 43
3) 54
4) 37
5) 28

Q.8 5541.70 +? – 1369.02 = 4199.90

1) 19
2) 22
3) 37
4) 32
5) 27

Q.9 $\frac{141-39}{75-49.7} = ?$

1) 4
2) 7
3) 8
4) 6
5) 10

Q.10 ? % of 130 = 11.7

1) 9
2) 90
3) 1
4) 13
5) 10

Q.11 13.6 ÷ 6.80 × 7.01 = ?

1) 27
2) 45
3) 37
4) 41
5) 14

Q.12 19.7% of ? + 9.9% of 150 = 25

1) 25
2) 20
3) 35
4) 30
5) 50

Q.13 5123.0712 + 364.6 + 18.105 = ?

1) 5125
2) 5599
3) 5506
4) 5400
5) None of those given as options

4) 5400
5) None of those given as options

Q14. 2399.80 ÷ 16.1514 = ?
1) 13
2) 130
3) 150
4) 15
5) 1300

Q15. √484 + 21% of 32 = ?
1) 35
2) 40
3) 20
4) 29
5) 32

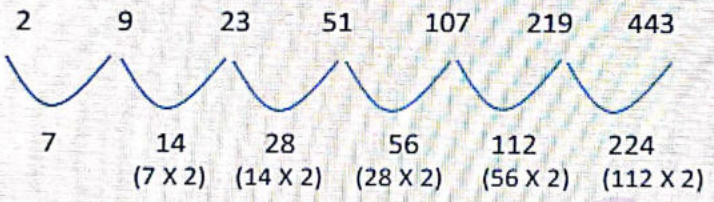
SOLUTION: Q.1-15. USE BODMAS RULE.

Q.16-20. In each of the following questions one number is wrong in the series. Find out the wrong number in each case.

Q.16. 2 9 22 51 107 219 443

1) 22
2) 51
3) 107
4) 219
5) 9

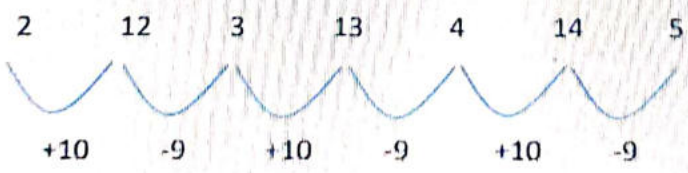
Solution: The correct series has following pattern.



Q.17. 2 12 3 13 4 17 5

1) 12
2) 3
3) 13
4) 4
5) 17

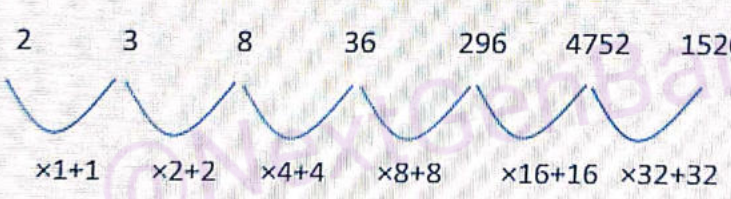
Solution: The correct series has following pattern.



Q.18 2 3 8 36 296 4726 152096

1) 3
2) 8
3) 36
4) 296
5) 4726

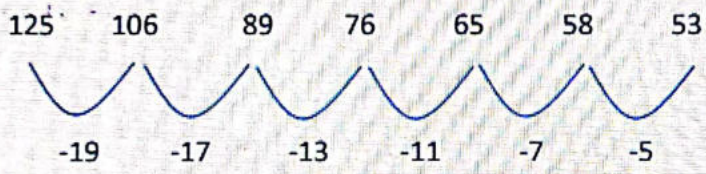
Solution: The correct series has following pattern.



Q.19 125 106 88 76 65 58 53

1) 58
2) 106
3) 88
4) 76
5) 65

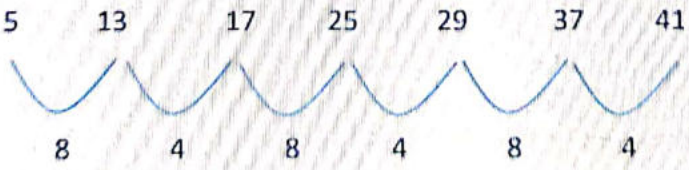
Solution: The correct series has following pattern.



Q.20 5 13 17 25 29 36 41

1) 13
2) 17
3) 25
4) 29
5) 36

Solution: The correct series has following pattern.



Q.21 If the length of a rectangle is increased by 30% and the width is decreased by 20% what percent change occurs in the area?

1) remains the same
2) increases by 4%
3) decreases by 4%
4) Cannot be determined
5) None of those given as options

Solution:

Area of rectangle (A) = length (l) X width (w)
New Area of rectangle (A') = (l + 30% of l) (w – 20% of w)
= (130% of l) (80% of w)
= 104% of lw
Hence area increased by 4%

Q.22 Suppose you know that $\sqrt{15}$ is approximately 3.88. Which of the following is the best approximation to $\sqrt{\frac{5}{3}}$?

1) 0.43
2) 1.89
3) 1.29
4) 1.63
5) None of those given as options

Solution: $\sqrt{15} = 3.88$

$$\sqrt{\frac{5}{3}} = \frac{\sqrt{15}}{3} = \frac{3.88}{3} \cong 1.29$$

Q.23 The length of a rectangular room is 4 meters. If it can be partitioned into two equal square rooms, what is the length of the partition in metres?

1) 1
2) 2
3) 4
4) Data is inadequate
5) None of those given as options

Q.24 If a, b, c, d and e are five consecutive odd numbers, what is their average?

1) b
2) c
3) d
4) Data is inadequate
5) None of these

4) Data is inadequate

5) None of these

Solution:

If a, b, c, d and e are five consecutive odd numbers then we can write them as

c-4, c-2, c, c+2, c+4

$$\text{average} = \frac{(c-4)+(c-2)+c+(c+2)+(c+4)}{5}$$

$$= \frac{5c}{5}$$

$$= c$$

Q.25 A trader bought a car at 20% discount on its original price. He sold it with a 40% increase on the price he bought. What percentage of profit did he make on the original price?

1) Nil
2) 12%
3) 32%
4) 20%
5) None of these

Solution:

Original price of car is P
Cost price is 80% of P
Selling price is 140% of cost price
= 140% of (80% of P)
= 112% of P
Hence profit is 12%

Q.26 A sum is divided among four persons in the ratio 3:4:5:8. If the second largest share is Rs. 2500, what is the total sum?

1) Rs. 10,000
2) Rs. 12,500
3) Rs. 4,000
4) Cannot be determined
5) None of those given as options

Solution:

Total sum $3x + 4x + 5x + 8x = 20x$
Second largest sum $5x = 2500$
$X = 500$
Hence total sum $20x = 20 \times 500$
$= 10,000$

Q.27 A scale of a map is 0.8 cm = 8.8 km. If the distance between two points on the map is 80.5 cm, which of the following is the distance between the two points?

1) 885.5 km.
2) 88 km.
3) 100 km.
4) 980 km.
5) None of those given as options

which of the following is the distance between the two points?

1) 885.5 km.
2) 88 km.
3) 100 km.
4) 980 km.
5) None of those given as options

Solution: 0.8 cm = 8.8 km

80.5 cm = 8.8 ÷ 0.8 × 80.5

= 885.5 KM

Q.28 The difference between the compound interest and the simple interest on a certain sum at 5% per annum for 2 years is Rs.1.50. What is the sum?

1) Rs. 600
2) Rs. 500
3) Rs. 400
4) Rs. 300
5) None of those given as options

Solution:

Let sum was P and interest r = 5%

Sum with compound interest = $P\ [1+r]^2$

Sum with simple interest = P + P × 2r

Difference = $P[1+r]^2 - P[1+2r]$

$= P[1+r^2+2r-1-2r]$

$= Pr^2$

$= P \times (0.05)^2$

$P(0.05)^2 = Rs.\ 1.5$

$P = \frac{1.5}{0.0025} = Rs.\ 600$

Q.29 A trader mixes 240 kg. of tea purchased at Rs.24 per kg. with 64 kg of tea purchased at Rs.35 per kg. At what price should he sell 1 kg of the mixture to make 33% profit?

1) Rs. 41
2) Rs. 33
3) Rs. 30
4) Rs. 35
5) None of those given as options

Solution:

Price of 1 kg mixture = $\frac{240\ X\ 24 + 64\ X\ 35}{240+64}$

Selling price should be = $\frac{240\ X\ 24 + 64\ X\ 35}{240+64} X \frac{133}{100}$

= Rs. 35

Q.30 A person invests 75 percent in machinery, 10 percent on raw materials, 10 percent on employees and has Rs. 20,000 cash with him. How much did he invest in machinery and raw materials together?

1) Rs. 17,000
2) Rs. 1,70,000
3) Rs. 3,40,000
4) Rs. 34,000

Q.30 A person invests 75 percent in machinery, 10 percent on raw materials, 10 percent on employees and has Rs. 20,000 cash with him. How much did he invest in machinery and raw materials together?

1) Rs. 17,000
2) Rs. 1,70,000
3) Rs. 3,40,000
4) Rs. 34,000
5) None of those given as options

Solution:

Let total cash was M
Rs. 20,000 = [100% - (75% + 10% + 10%)] of M
= 5% of M
M = Rs. 4,00,000
Investment in machinery and raw material = 75% + 10% = 85%
= 85% of M
= Rs. 3,40,000

Q.31 A boat takes four hours for travelling downstream from point A to point B and coming back to point A upstream. If the speed of the stream is 2 km per hour and the speed of the boat in still water is 4 km per hour, what is the distance between A and B?

1) 6 km
2) 8 km
3) 4 km

Q.31 A boat takes four hours for travelling downstream from point A to point B and coming back to point A upstream. If the speed of the stream is 2 km per hour and the speed of the boat in still water is 4 km per hour, what is the distance between A and B?

1) 6 km
2) 8 km
3) 4 km

4) 9 km
5) None of those given as options

Solution:

Let distance between A and B is d km and time taken to travelling downstream is t hours.

$4 + 2 = \frac{d}{t}$ and $4-2 = \frac{d}{4-t}$

$6t = d$ and $8-2t = d$

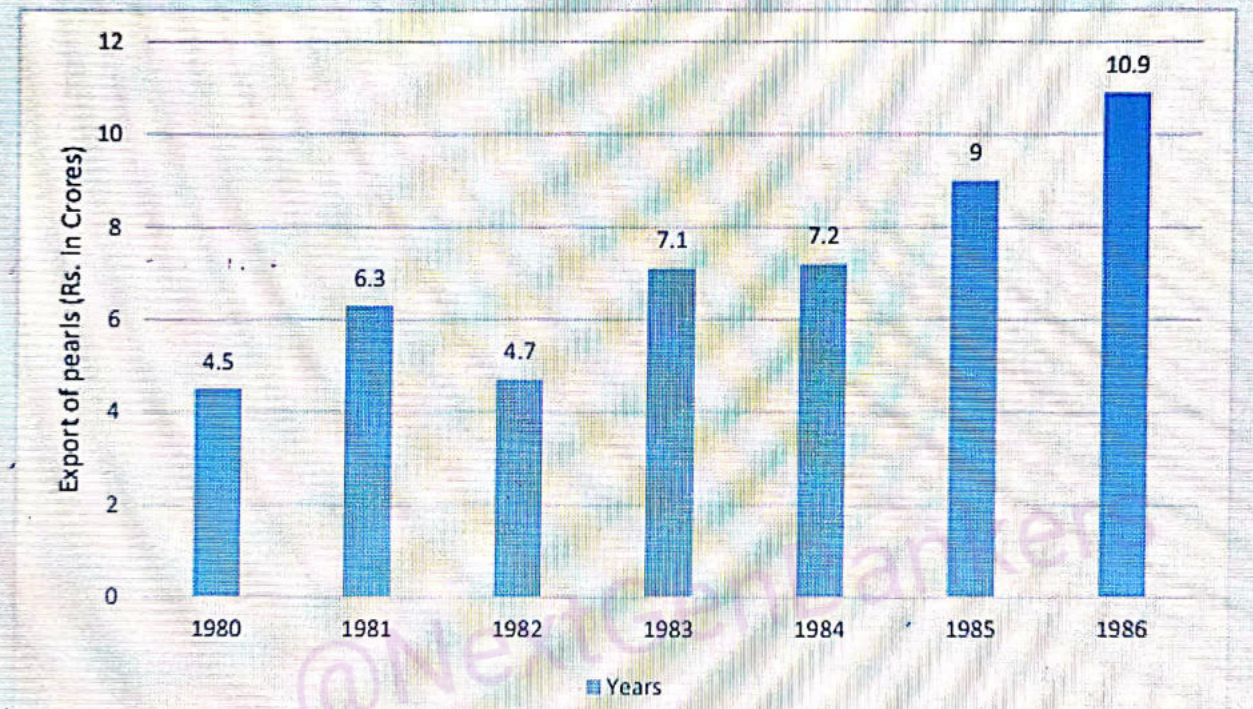
$6t = 8-2t$

$t = 1$

$d = 6t = 6$ km.

d = 6t = 6 km.

Q.32-36. Study the following graph carefully and answer the questions given below it:-



Q32. In which year was there maximum percentage increase of export of pearls from previous year?

1) 1983
2) 1982
3) 1987
4) 1986
5) 1984

Q.33 In which of the following pairs of years was the average export of pearls 7 crores?

1) 1981 and 1982

5) 1984

Q.33 In which of the following pairs of years was the average export of pearls 7 crores?

1) 1981 and 1982
2) 1982 and 1983
3) 1982 and 1984
4) 1983 and 1985
5) None of those given as options

Q.34 In how many years was the export of pearls above the average export of pearls of the given period?

1) One
2) Two
3) Three
4) None
5) More than three

Q.35 In which year was the export of pearls equal to the average export of the given period?

Q.35 In which year was the export of pearls equal to the average export of the given period?

1) 1981
2) 1982
3) 1984
4) 1986
5) None of those given as options

Q.36 What was the approximate percentage increase in export of pearls from 1985 to 1986?

1) 21
2) 75
3) 25
4) 50
5) None of those given as options

Solution 32-36: Based on the reading of the given Graph

Q.37-41 Study the following table and answer the questions given below it.

Number of five types of cars produced and rejected (for defects) by a Company over the years (in thousands)

Car / Year	A		B		C		D		E	
	Produced	Rejected	Produced	Rejected	Produced	Rejected	Produced	Rejected	Produced	Rejected
2013	20	2	50	3	15	0.5	80	5	60	4
2014	35	3	45	2	20	0.55	75	4	58	4
2015	15	0.5	40	2.5	17	0.75	58	2	62	3.5
2016	25	1.25	42	2.3	25	1.5	65	3	40	1.5
2017	30	1.5	48	2.5	30	2.0	68	3	45	2
2018	27	1.5	41	2.1	26	1.75	72	3.5	50	2.5

2018	27	1.9	41	2.1	20	1.75	72	3.9	50	2.9

Q.37 In the case of B type car in which year was the ratio of rejection to production the highest among the given years?

1) 2013
2) 2014
3) 2015
4) 2017
5) 2018

Q.38 In the case of E type car in which year was the ratio of rejection to production the lowest among the given years?

1) 2014
2) 2015
3) 2016
4) 2017
5) 2018

Q.39 What was the difference in number of C type cars rejected between 2014 and 2015?

1) 200

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Q.39 What was the difference in number of C type cars rejected between 2014 and 2015?

1) 200
2) 250
3) 2000
4) 2500
5) None of those given as options

Q.40 The acceptable E type cars in 2015 was what percent of that of 2014?

1) 8
2) 106
3) 110
4) 5
5) None of those given as options

Q.41 In the year 2014 in the case of which of the following cars was the rejection below five percent?

1) A
2) B or E
3) B and C
4) C and D
5) None of those given as options

Solution 37-41: Based on the reading of the given Table

Q.42 The average of the ages of A, B and C is 20 years. If the average of the ages of B and C is 22 years, what is the age of A in years?

1) 21
2) 16
3) 18
4) 22
5) None of those given as options

Solution:

Solution 37-41: based on the reading of the given Table

Q.42 The average of the ages of A, B and C is 20 years. If the average of the ages of B and C is 22 years, what is the age of A in years?

1) 21
2) 16
3) 18
4) 22
5) None of those given as options

Solution:

A +B +C = 20 X 3 = 60

B + C = 22 X 2 = 44

A = (A+B+C) – (B+C) = 60-44 = 16

Q.43 A shopkeeper bought 30 kg of rice at the rate of Rs.7.00 per kg and 20 kg of rice at the rate of Rs.7.75 per kg. He mixed the two and sold the mixture at the rate of Rs.7.50 per kg. What was his gain/loss in the transaction?

1) Rs.10.00 gain
2) Rs.10.00 loss
3) Rs.27.50 gain
4) Rs.27.50 loss
5) None of those given as options

Solution:

Shopkeeper's investment in rice = 30X7 + 20X7.75

= Rs. 365

His revenue from rice = (30+20) X 7.5

= Rs. 375

Profit = revenue – cost

= 375 – 365 = 10

Hence Rs. 10.00 gain

Q.44 The simple interest earned on a sum of money after 10 years at the rate of 5% per annum was half of the sum. What was the sum?

1) Rs.10,000/-
2) Rs.20,000/-
3) Rs.12,000/-
4) Data inadequate
5) None of those given as options

Solution: $A \times \frac{5}{100} \times 10 = \frac{A}{2}$, where A is the sum of Money

This equation is satisfied by any positive value of A, hence data is inadequate to find the sum of money

Q.45 If the price of six toys is Rs.264.37, what will be the approximate price of five toys?

1) Rs.160.00
2) Rs.200.00
3) Rs.240.00
4) Rs.220.00
5) Rs.140.00

Solution: $\frac{264.37}{6} \times 5 \cong 220$

Q.46 Six years ago the ratio of the ages of Kamal and Suresh was 6 : 5, four years hence the ratio

Solution: $\frac{264.37}{6} \times 5 \cong 220$

Q.46 Six years ago the ratio of the ages of Kamal and Suresh was 6 : 5, four years hence the ratio of their ages will be 11:10. What is Suresh's age at present?

1) 20 years
2) 18 years
3) 16 years
4) Cannot be determined
5) None of those given as options

Solution:

Let age of kamal and suresh is x and y respectively

Hence $\frac{x-6}{y-6} = \frac{6}{5}$; $5x - 6y = -6$ .....(1)

Hence $\frac{x+4}{y+4} = \frac{11}{10}$; $10x - 11y = 4$ .....(2)

From (1) and (2)

Y = 16 years

Q.47 At the end of three years, what will approximately be the compound interest on Rs.10,105/- at the rate of 10% per annum?

1) Rs.4,500/-
2) Rs.3,000/-
3) Rs.3,300/-

Q.47 At the end of three years, what will approximately be the compound interest on Rs.10,105/- at the rate of 10% per annum?

1) Rs.4,500/-
2) Rs.3,000/-
3) Rs.3,300/-

4) Rs.3,600/-
5) None of those given as options

Solution: By applying the formula of Compound interest

$$Compound\ Interest = Principle\ Amount\ (1 + \frac{R}{100})^{time}$$

Q.48 12 men complete a work in 18 days. Six days after they had started working, four more men joined them. How many days will all of them take to complete the remaining work?

1) 10
2) 12
3) 15
4) 9
5) None of those given as options

Solution:

Men Work Day

4) 9

5) None of those given as options

Solution:

Men		Work		Day	
12	↑	1	↓	18	↓
12+4		$\frac{2}{3}$		X	

$$\frac{x}{18} = \frac{2}{3} X \frac{12}{16}$$

$$X = \frac{2}{3} X \frac{12}{16} X 18 = 9 \text{ days}$$

Q.49 If three-fourth of a number is 27, what will approximate one-seventh of that number be?

1) 7
2) 5
3) 10
4) 9
5) 3

Solution: $3 X \div 4 = 27$

$X = 36$

$36 \div 7 \cong 5$

Q.50 A sum of money is divided among three persons in the ratio 4 : 6 : 9. If the largest share is Rs.1,000/- more than the smallest share, what is the total sum?

1) Rs.4,000/-
2) Rs.9,500/-
3) Rs.3,600/-
4) Rs.3,800/-
5) None of those given as options

4) 9
5) 3

Solution: 3 X ÷ 4 = 27

X = 36

36 ÷ 7 ≅ 5

Q.50 A sum of money is divided among three persons in the ratio 4 : 6 : 9. If the largest share is Rs.1,000/- more than the smallest share, what is the total sum?

1) Rs.4,000/-
2) Rs.9,500/-
3) Rs.3,600/-
4) Rs.3,800/-
5) None of those given as options

Solution:
Sum of money divided among three persons in the ratio 4:6:9.
Let their share is 4x, 6x, 9x
Hence 9x-4x = 1000
X = 200
Total sum = 4x+6x+9x = 19x = Rs. 3800.