Quantitative Aptitude

Ans.1(3) Total number of Men population in countries (Denmark, Egypt and Guyana)
Denmark = 4/12 × 10/100 × 45670000
= 1522333.3 = 1522333
Egypt = 9/14 × 18/100 × 45670000
= 5284671.4 = 5284671
Guyana = 4/9 × 456700 ×10 = 2029777.7
= 2029778
Total = 8826782

Ans.2(1) Total number of population in Algeria, Bhutan and Egypt
= (12+13+18)/100×45670000
= 19638100

Ans.3(4) 9 × 18/14: 5 × 10/9
= 729: 350

Ans.4(2) Total number of Men population in Denmark, Egypt and France.
= (1522333+ 5284671+ 1120991)
= 7927995
= 7927995/45670000 × 100
= 17.35
= 17%

Ans.5(5) Women population in France, Guyana and Italy
France = 8/11 × 9/100×45670000 = 2989309.09
= 2989309
Guyana = 5/9 × 10/100×45670000
= 2537222.22
= 2537222
Italy = 4/11 × 17/100×45670000 = 2823236.36
= 2823236
Total = 2989309 + 2537222 + 2823236
= 8349767

Ans.6(2) I. a - 7 √3a + 36 = 0
or a - 7 √3. √a + 36 = 0
or a - 3 √3. √a - 4 √3. √a + 36 = 0
or (√a - 3 √3)(√a - 4√3) = 0
a = 3√3, 4√3
II. b - 5 √2b - 7 √2b + 70 = 0
or b - 5 √2. √b - 7 √2. √b + 70 = 0
or (b - 5 √2)(b - 7 √2) = 0
b = 7√2, 5√2
a < b

Ans.7(2) I. 10a + 6b = 13
II. 45a + 24b = 56
On solving both equations,
a = 4/5, b = 5/6

Ans.8(5) I. 63a -194 √a +143 = 0
or 63a -117 √a - 77√a +143 = 0
or (7 √a -13)(9 √a -11) = 0
a = 169/49, 121/81
II. 99b - 225 √b +150 = 0
or 99b - 90 √b -165 √b +150 = 0
or (11 √b -10)(9√b -15) = 0
b = 100/121, 225/81
Therefore relation cannot be established between a and b.

Ans.9(2) I. $16a^2$- 40a - 39 = 0
or $16a^2$ - 52a + 12a - 39 = 0
or (4a- 13) (4a + 3)
a = 13/4, -3/4
II.$12b^2$ - 113b + 255 = 0
or $12b^2$ - 45b - 68b + 255 = 0
or (4b - 15) (3b - 17) = 0
b = 15/4, 17/3
Therefore b > a or, a < b

Ans.10(1) I. a^2 - 7 √7a + 84 = 0
or (a - 4 √7)(a - 3√7) = 0
a = 4 √7, 3 √7
II. b^2 - 5 √5b + 30 = 0
or (b - 2 √5)(b - 3 √5) = 0
b = 2 √5, 3 √5
a > b

Ans.11(1) Population of Maharashtra in the year 2007
= 40 lakh
Number of males below poverty line in Maharashtra in the year 2007
= 40 × 45/100 × 10/15 = 12 lakh
Population of Maharashtra in 2009
= 40 + 40 × 21/100 = 48.4 lakh
Number of males below poverty line in Maharashtra in 2009
= 48.4 × 42/100 × 10/14 = 14.52 lakh
Required % increase = (14.52 - 12)/12 × 100
= 2.52/12 × 100 = 21%

Ans.12(5) Total population in any year is not given, so we cannot determine the population of all the states in 2010.

Ans.13(3) The number of females below poverty line, in Bihar in the year 2010
= 55 × 38/100 × 10.9/20.9
= 20.9 × 10.9/20.9 = 10.90 lakh
Again, In Maharashtra in the year 2010 = 62 × 40/10 × 10/20 = 12.4 lakh.
Required ratio =109/124 = 109: 124

Ans.14(1) Population of Rajasthan in the year 2008
= 55 lakh
Population of Rajasthan in the year 2007
= 50 lakh
The number of females below poverty line in Rajasthan in the year 2007
= 50 × 24/100 × 5/15 = 4 lakh

Ans.15(2) Population of Rajasthan below poverty line in the year 2010
= 60 × 32/100 = 19.2 lakh
Population of Bihar below poverty line in the year 2010
= 55 × 38/100 = 20.9 lakh
Population of Maharashtra below poverty line in the year 2010
= 62 × 40/100 = 24.8 lakh
Total population below poverty line in the year 2010 = 19.2 + 20.9 + 24.8 = 64.9 lakh

Ans.16(5) From both the statements,
Radius of the larger roller = 7x units
Radius of the smaller roller = 3x units
Area flattened by smaller roller in 63 rotations
= 2×pi × 3x × l × 63
Therefore, 6 × 63×pi×r×l = 2×pi × 7x × l × n
=> n = 27

Ans.17(3) From statement I: r = (100×100)/1000 = 10%
P = Rs. 1000, r = 10%, t = 3 years
Hence, CI can be described.
From statement II: SI = (1000×r×2)/100 = 20r
CI = 1000[(1+(r/100)^2) – 1] Therefore, CI – SI = 1000[(1+(r/100)^2) – 1] – 20r
=> r = 10
Hence , CI can be determined.

Ans.18(4) From statement I: no result comes.
From statement II: x×(75/100) = (300×90)/100
=> x = 27000/75

Ans.19(1) From statement I: 2(A+B+C)
= (1/6) + (1/12) + (1/10)
From this we can find (A + B + C) 's one days of work.
From statement II: No such result can be concluded.

Ans.20(4) From statement I: We can find the loss in rupees.
From statement II: Loss of water supply = 700 million gallon × 12%
Both the statements are required to answer the question.

Ans.21(4) Nagar: Sekar: Dhivagar = (12500×12+ 17500×12 +22500×12): (17500×24): (17500×12)

= 50000+210000+270000: 420000: 210000
= 630000: 420000: 210000
= 63: 42: 21
= 3:2:1
Sekar share = Rs(75000 × 2/6)
= Rs(75000 / 3)
= Rs.25000

Ans.22(4) Suppose he bought 41kg, 6 kg, and 5 kg of the 3 varieties
Cost price of 15 kg = Rs((4×150) + (6×60) + (5×90))
= Rs[600+360+450]
= Rs.1410
Selling price of 15 kg = Rs(15×100)
= Rs.1500
Gain = S.P – C.P
= Rs(1500 – 1410)
= Rs.90
Profit% = profit / cp ×100
= 90/1410 × 100
= 6.3%

Ans.23(1) Let present age of Ranveer be 7x and
Present age of Nikitha be 5x years
(7x – 6) / (5x+6) = 3/3 =1/1
7x – 6 = 5x+6
7x – 5x = 6+6
2x = 12
x = 6 years
Required ratio = (7x+6) : (5x-6)
= (7×6+6) : (5×6-6)
= (42+6) : (30-6)
= 48 : 24
= 2:1
Therefore the ratio between the Ranveer's age 6 years hence and Nikitha's age 6 years ago is 2:1

Ans.24(4) Cost Price of Sony = 25000 × 100/ (100+25)
= 20000
Cost Price of Motorola = 20000 × 100/ (100+25)
= 16000
Required Ratio = 20000: 16000 = 5: 4

Ans.25(1) Amount of profit on Nokia = 2000
Cost Price = 2000× 100/10 = 20000
Selling Price = 20000 + 2000 = 22000
Market Price = Selling Price × 100 /
(100 –Discount %)
= 20000 × 100 /80 = 27500
Required Percentage = [(27500 -20000) /20000] × 100 = 37.5%

Ans.26(5) Percentage of profit on Sony = 25%
Percentage of discount on Sony
= [40000 – 25000/40000]×100
= 37.5%
Required Ratio = 25: 37.5
= 2: 3

Ans.27(3) Market Price of Apple = 500 × 100/20 = 2500
Selling Price of Apple = 2500 – 500 = 2000
Selling Price of Samsung = 50000 × 60 / 100
= 30000
Cost Price of Samsung = 30000 × 100/80
= 37500
Required Percentage = (2000/37500)×100
= 5.3%

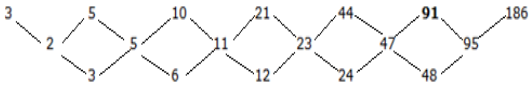
Ans.28(2) Selling Price of Samsung = 50000 × 60/100
= 30000
Loss on Samsung = 30000 × 100/80 – 30000
= Rs.7500
Market Price of Apple = 500 × 100 /20 = 2500
Selling Price of Apple = 2500 – 500 = 2000
Profit on Apple =2000 – 1800 = Rs.200
Profit on Nokia = Rs. 2000
Profit on Sony = 25000 – 25000 ×100/125
= Rs. 5000
Profit on Motorola = 20000 – 20000 × 100 / 125
= Rs. 4000
Profit on HTC = 10,000 × 20 /100 = Rs.2000
Total Profit = -7500 + 200 + 2000 + 5000 + 4000 + 2000
= Rs. 5700

Ans.29(1) Subtract 20, 25, 30, 35, 40, 45 from successive numbers. So, 1 is wrong.

Ans.30(1) Here the sequence can be achieved by -7^2, -9^2, -11^2, -13^2, 15^2, 17^2…

Ans.31(5) Difference: -2^1, $+2^2$, -2^3, $+2^4$, -2^5

Ans.32(4)



Ans.33(5) The Series is $\times 1+1^3$; $\times 2+2^3$; $\times 3+3^3$, $\times 4+4^3$, $\times 5+5^3$, $\times 6+6^3$..

Ans.34(4) Volume of the barrel of Ink pen = $\pi r^2 h$ = 22/7 × 0.12×0.12 × 7 = 0.3168cu cm
A barrel which has capacity 0.3168 cu. cm can write 450 words
So which has capacity 17 cu cm can write
= 450/0.3168×17= 24147 words

Ans.35(5) Let initial quantity of wine = x litre
After a total of 4 operations, quantity of wine $x(1-(y/x))^n = x(1-12/x)^4$
Given that after a total of 4 operations, the ratio of the quantity of wine left in cask to that of water
= 81 : 256
x (1-12 / x)4/ x = 81/ 256
$(1-12/x)^4 = (3/4)^4$
(x – 12) / x = 3 / 4
4x – 48 = 3x
x = 48

Ans.36(2) Faucet P can fill the tank completely in 12 hours
=> In 1 hour, Faucet P can fill 1/12 of the tank
Faucet q can empty the tank completely in 24 hours
=> In 1 hour, Faucet Q can empty 1/24 of the tank
i.e., In one hour, Tank P and Q together can effectively fill (1/12-1/24)=1/24 of the tank
=> In 8 hours, Tank P and Q can effectively fill 1/24×8=1/3 of the tank.
Time taken to fill the remaining (1−1/3) = 2/3of the tank = (2/3)/(1/12) = 8 hours

Ans.37(2) First girl speed = 9km/hr
= 9 × 5 / 18 m/s
= 5/2 m/s
= 2.5 m/s
Second girl speed = 10.8 km/hr
= 10.8 × 5/18 m/s
= 54/18
= 3 m/s
Let the speed of the train be x m/s and speed of the train = distance / time
(x – 2.5) × 16.8 = (x – 3) × 17
16.8x – 42 = 17x – 51
0.2x = 9
x = 45
Therefore the speed of the train is 45 m/s

Ans.38(4) Let the number of students in Class A1 be x and class A2 be y.
Total marks scored by the students will be 120x and 130y, the average gets interchanged after moving student from y
Thus we get,
130y-8×150=120(y-8)
130y-1200=120y-960
10y =240
y =24
Similarly, 120x +1200 =130(x+8)
120x+1200=130x+1040

10x=160
x =16
Thus the total number of students =24+16=40

Ans.39(1) Let the cost price be Rs. 100
Then, market price is Rs. 150
Now, the first discount is of 33% Rs.150 =Rs. 50
Hence, it's selling price = 150 - 50 = Rs. 100
Since vadi's selling at cost price, any further discount will be equal to loss %
The next discount of 14.5% will be the loss percentage to vadi

Ans.40(3) Let investment of Bhairavi be X rupees for 12 months
Agalya's investment for 12 months
= 14000×3+5000×4+6000×5
= Rs 92000
Share received by Bhairavi = Rs 9720
Share received by Agalya =Rs 21600
Ratio of their profit 92000/X=21600/9720
x = Rs 41400

Ans.41(1) Part filled by (A+B+C) in 5 mins
= 5(1/45 +1/35 + 1/25)
= 5 ((35+45+63)/1575)
= 143/315
Part filled by c in 5 mins = 5/25 = 1/5
Required ratio = 1/5 × 315/143 =63/143.

Ans.42(5) After one year he had P + (P x 10 x 1)/100
= Rs. 11P/10
After two years, he had
11P/10 + (11P/10 x 10 x 1)/100
= Rs. 121P/100 ...(i)
After withdrawn Rs. 5000 from Rs. 121P/100, the balance
= Rs. (121P - 500000)/100
After 3 yr, he had
(121P - 500000)/100 + [(121P - 500000) /100 x 10 x 1]/100
= 11(121P - 500000)/1000 ... (ii)
After withdrawn Rs. 6000 from amount (ii) the
= (1331P/1000 - 11500)
∴ After 4 yr, he had Rs. (1331P - 11500000)/1000 + 10% of Rs. (1331P - 11500000)/1000
= Rs. (11/10) x (1331P/1000 - 11500) ... (iii)
After withdrawn Rs. 10000 from amount (iii) the balance =0
∴ 11/10(1331P/1000 - 11500) - 10000 = 0
⇒ P = Rs. 15470

Ans.43(4) Average Rupee collection = Speed× capacity × Occupancy × Ticket rate
Ratio of average Rupee collection of truck to that of bus= product of above rate
According to question,
(3×60×1×1.5):(1×40×2×1)= 270:80=27:8

Ans.44(1) Let distance = x km
Usual rate = y km/hr
Then x/y – x/(y+40) =1
(x(y+40) – xy) / y(y+40) = 1
xy+40x – xy = y(y+40)
40x = y(y+40) ---------->1
x/y – x/(y+80) = 7/4
(x(y+80) – xy)/ y(y+80) = 7/4
xy +80x – xy / y(y+80) = 7/4
320x = 7y(y+80) ---------->2
Dividing 1 by 2 we get
8 = 7(y+80) / (y+40)
8(y+40) = 7y + 560
8y +320 = 7y+560
y=240
Substitute y value in 1
40x = 240×280
x=1680 km

Ans.45(2) 300 male in 50 days do = 1/2work
1 male in 1 day does = 1/2×1/50×1/300 work
100 male in 120 days do = 1/2 ×1/50×1/300 ×100×120 =2/5 work
Total work done = 1/2 + 2/5 =(5+4)/10=9/10
Remaining work = 1-9/10=1/10
Remaining time = (250-50-120-20) = 60days
1/2 work is done in 50 days by 300 male
1/10 work is done in 60 days by
= 300×50×1×2/(10×60)
= 50 males

Ans.46(4) 105.27% of 1200.11 + 11.80% of 2360.85
= 21.99% of ? + 1420.99
or, [(105 × 1200) / 100] + [(12 × 2360) / 100] = [(22 × ?) / 100] + 1421
or, [(22 × ?) / 100] = 1260 + 283.20 – 1421 ≈ 1543 – 1421 = 122
? = [(122 × 100) / 22] = [(122 × 50) / 11] = 11 × 50 = 550

Ans.47(3) 0.98% of 7824 + 4842 / 119.46 - ? = 78
or, 1% of 7824 + 4842 / 120 – 78 = ?
or, ? = [(1 × 7824) / 100] + (4842 / 120) – 78
≈ 78 + 40 – 78 = 40

Ans.48(1) $[(41.99)^2 – (18.04)2] / ? = (13.11)^2 – 138.99$
or, $[(42)^2 – (18)^2] / ? = (13)^2 – 139$
or, [(42 + 18) (42 - 18)] / ? = 169 - 139
or, 60 × 24 / ? = 30
or, ? = 60 × 24 / 30 = 48

Ans.49(2) $? = (24.96)^2 / (34.11 / 20.05) + 67.96 – 89.11$
$≈ (25)^2 / (34 / 20) + 67.96 – 89$
≈ 625 / 1.7 + 68 – 89
≈ 367 + 68 – 89 ≈ 346

Ans.50(2) √(2025.11) × √(256.04) + √(399.95) × √?
= 33.98 × 40
or, √(2025) × √(256) + √(400) × √? = 1360
or, 20 × √? = 1360 – 720 = 640
or, √? = (640 / 20) = 32
? = 32 × 32 = 1024